Government Of Maharashtra
Department Of Agriculture

World Bank assisted

Maharashtra Agricultural Competitiveness Project

(MACP)

Marketing Strategy Supplement (MSS)

District - Buldhana

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Abbreviation

ABPF	-Agri Business Promotion Facility
AES	-Agri Ecological Situation
AGMARK	-Agri Marketing Information Network
APMC	-Agriculture Produce Market Committee
ATMA	-Agricultural Technology Management Agency
BTT	-Block level technology Team
CIGs	-Common Interest Groups
DMI	-Director of Marketing and Inspection
FAC	-Farmers Advisory Committee
FCSC	-Farmers Common Service Centers
FIAC	-Farmers Information and Advisory Center
FIG's	-Farmer Interest Groups
HPTI	-Horticulture Processing and Training Institute
MACP	-Maharashtra Agriculture Competitiveness Project
MANAGE	-National Institute of Agricultural Extension Management
MSS	-Marketing Strategy Supplement
NFSM	-National Food Security Mission
NHM	-National Horticultural Mission
PA	-Producer Associations
PC	-Producer Company
PCN	-Project Concept Note
PG	-Producer Groups
PHM	-Post Harvest Management
PPP	-Public Private Partnership
RKVY	-Rashtriy Krishi Vikas Yojana

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Executive Summary

The overall goal of this document is to analyze relevant information that will enable the creation of sustainable and replicable businesses for farmers groups in the district of Buldhana. This report aims to contribute to the already existing 'Market Strategy Supplement' document developed by Vanamati and outlines the existing marketing systems and channels in the district alongwith analyzing the emerging crops of the district. This information will be critical in helping us understand the current activities and developments in Buldhana and enabling us to identify potential business opportunities that farmer groups can establish in the district. Furthermore, this document will also serve as a base document for ATMA and other organizations to plan their activities centered on developing specific capabilities of farmers, improving infrastructure in the district as well as providing required services to farmers and other stakeholders.

The primary crops as identified through our analysis for the district are found to be soybean, cotton, bengal gram, red gram and maize. TechnoServe has primarily focused on these five crops to further detail out the report and has identified three specific business opportunities- small scale spinning mill (microspin), soymilk processing, and vegetable hybrid seeds production unit. However, in order to encourage business enterprises for farmer groups, basic facilities and services will need to be offered and improved. For instance, farmers will need to be encouraged and trained on ensuring continuous and good quality raw material for the processing units. Further, marketing infrastructure will need improvement so as to reduce post harvest losses leading to better quality raw material for the businesses. The section on 'Recommendations' exhaustively discusses the factors that need to be taken into consideration for encouraging business activity amongst farmer groups and specifically helps identify a road map for relevant institutions.

By using a detailed analytical approach, this report has identified important information on marketing systems and emerging crops that will help in the development of the district and increase the economic and income opportunities for farmers. Specific topics discussed in this report are as follows:

1. Emerging major crops of the district
2. Price variation for emerging crops of the district
3. Farmer Assessment
4. Existing Marketing scenario
5. Constraints in the marketing system
6. Recommendations

While section 1 introduces the main crops of the districts, section 2 provides detailed information on these crops in terms of price variations and arrivals data. Section 1 and section 2 help us to explore and understand the current agricultural practices of farmers centered on the five emerging crops identified and recommend package of practices that will enable further development and income generation for farmers. This farmer assessment is discussed extensively in Section 3. Section 4 and 5 of this report then move on to evaluate the different marketing channels in the district and explore the constraints of this marketing system. These sections examine regulated markets of the district and compare these regulated markets with private markets. The main output from these sections is to understand the key trends in the marketing scenario and recommend improvements in infrastructure and services that will enable a more efficient marketing system in the district. Finally, the last section highlights the main opportunities feasible in the district centered on the emerging crops identified. This section also discusses qualitative results from the data obtained and recommends activities and services that ATMA and other similar organizations can undertake to improve the agricultural and marketing facilities of the district along with building the capabilities of farmers.

Introduction

World Bank assisted Maharashtra Agriculture Competitiveness Project is an initiative by Government of Maharashtra to overcome deficiencies in the present agriculture marketing system of the State. The present marketing system is placed with shortcomings. Though there is a good amount of marketable surplus in the district, the producers do not get a reasonable price for their produce because of serious deficiencies in the present agricultural marketing system. Broadly these are,

i) The value chain is very long and fragmented. Therefore, particularly in perishables, share of the producer in the consumer's rupee is very low (it is at times as low as 20%)
ii) Lack of standardization and enforcement of quality and grades
iii) Insufficient and ineffective services to the farmers regarding inputs and information
iv) Lack of facilities for grading, packing, cold storage and agro-processing units
v) Inadequate transparency in marketing and
vi) Lack of private sector investment.

This problem could be better addressed through different interventions resting on two pillars:

i) Improving Extension support to farmers

ii) Improving Agricultural Marketing.

The productivity improvement and production of improved quality of various agricultural produce is absolutely necessary to make agriculture viable. The thrust so far has been on increasing the productivity, and therefore, the extension machinery of the concerned departments was targeting to increase the production. Market led extension was totally lacking and this resulted in poor understanding of agricultural marketing by the concerned departmental agencies and the producers.

Various national programmes like Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), and National Food Security Mission (NFSM) have been implemented in the district. The proposed MACP, with the assistance of the World Bank, is one of the many steps being taken by the Govt. of Maharashtra, to address the various issues and constraints in development of agriculture. The components and subcomponents under MACP are based on the ingredients of the overall strategy of the State. MACP aims to enhance the productivity in agriculture and improvement of quality production through capacity building of producers with the help of ATMA programs. In order to enable farmer to fetch competitive price for the agriculture produce, various alternative channels of marketing are proposed to be developed, besides strengthening the present marketing structure, by way of modernization.

The Project Development Objective (PDO) and overall objectives of MACP are outlined below. The Project proposes to improve the productivity and quality of produce in agriculture and allied sector by various interventions proposed under Component A**.** The objective of better and reasonable returns to the farmer of his produce can be achieved if the farmers' access to the markets is improved. This has been proposed to be achieved by infrastructure development and creating alternative marketing channels under Component B.

Component A: Intensification and Diversification of Market led Production

i) A1: Market-led Agriculture Technology Transfer (Objective: To increase the productivity of agriculture production by adopting modern technology.)
ii) A2: Agri Business Promotion Facility (Objective: To create trained manpower to operate and manage the infrastructure facilities.)
iii) A3: Market Information Services (Objective: To improve market access for enhancing the marketing opportunities for farmers.)
iv) A4: Livestock Support Services (Objective: To strengthen sources of alternative income to farmers.)

Component B: Improving Farmer Access to Markets

i) B1: Promoting Alternative Markets
   - B1.1: Product Aggregation and Sale through Producers Association (Objective: To provide improved post harvest handling facilities at village level.)
   - B1.2: Warehouse Receipts Development (Objective: To improve the capacity of farmers on price risk mitigation.)
   - B1.3: Rural Haat Markets (Objective: To strengthen alternative marketing channel of traditional rural haats.)
   - B1.4: Introducing e-Marketing Platform (Objective: To establish e-trading as one of the alternative marketing channels.

ii) B2: Modernizing Existing Markets
   - B2.1: Modernizing Wholesale Markets (Objective: To improve transparency in all APMCs and to provide basic and productive infrastructure.)
   - B2.2: Upgrading Livestock Yards (Objective: To improve transparency in all Livestock Markets and to provide modern infrastructure.)

Efforts have been put in by the State Government to increase the production with the help of technology upgradation and dissemination of technology amongst the farmers. However there are critical gaps existing in the present system, because of which the producers are not in a position to get the reasonable value for their produce.

The project component A seeks to focus on the strengthening ATMA program to facilitate market-led extension. This will call for reorientation of the extension functionaries to focus on improved productivity, quality, market information and improved methods of marketing based on the updated market information and intelligence. This renewed focus on ATMA extension system would necessitate strengthening ATMA by institution and operation, making them vibrant and efficient to face the emerging challenges in agricultural production, marketing and agri-business. The focus would be on ways and means for developing and strengthening interdepartmental linkages to support not only Farmers Common Service Centers (FCSC) but also for providing support to the farmers in all the districts to achieve increased income from their land based occupations involving crops, horticulture and livestock. The effort would be to implement ATMA program as an integrated, demand-led and farmer-centered program of all line departments with special focus on marketing extension in all the districts of the state.

The SREPs for all the districts in Maharashtra have recently been prepared and cover the production aspects of field crops, vegetable, fruit, ornamental, spices and medicinal plants and livestock. Under this Project the Marketing Strategy Supplement (MSS) to the SREP will be prepared for each district focusing on what needs to be done to improve market-led

production, marketing related training of line department staff and farmers and linkages with the investments proposed for improving marketing infrastructure under component B of the project.

Some of the key objectives of the MSS report are outlined below:

1) To identify gaps/issues in market led production.
2) To study the existing marketing system of the district and to identify constraints in the marketing system.
3) To suggest strategies and activities to overcome gaps in market led production.
4) To suggest interventions to mitigate constraints in the marketing system of the district.

Overall MSS will focus on what needs to be done to improve market led production, marketing related trainings of line department staff and farmers and linkages with the investments proposed for improving marketing infrastructure. MSS will be a road map for implementing components in MACP.

Methodology

The Market Strategy Supplement (MSS) for each district is aimed to identify gaps in market led production and to suggest strategies to overcome these gaps. In this process, data specific to product grade, marketing channels, infrastructure facilities as well as trade licenses is quintessential for the genesis of these strategies. After an in-depth study of the district MSS, some data gaps have been identified primarily related to marketing channels and marketing bodies as well as facilities and infrastructure at APMCs and Rural Haats.

TechnoServe has addressed these gaps by making filed visits as well as by using secondary level data from new sources, and a comprehensive use of the already available data. The refined Market Supplement Document (MSS) is a culmination of our secondary research and our primary insights from the field. The team also focused on validating the data in the existing MSS document wherever possible. While primary insights have been collected from Government stakeholders and farmers amongst other stakeholders, the secondary information has been derived from data received from the MACP and MSAMB offices in Pune and the Department of Agriculture, Government of Maharashtra. Through this process, we have addressed the gaps that exist in the current MSS document. The three step approach mentioned above is detailed below:

i. Primary insights: Key components of the MSS including market development, farmer level issues and the SWOT analysis amongst others are supported by primary

insights from the field. This includes interactions with APMCs to synthesize the market channels for crop categories, and interactions with traders, commission agents and warehouse operators to understand the storage periods of crops across APMCs in the district. Based on primary interactions with key stakeholders including MSAMB, APMC and Department of Agriculture, a snapshot of marketing bodies and their respective roles has also been synthesized.

ii. Secondary research: Using crop arrivals data and crop areas, as collected from MACP and Department of Agriculture, pivot tables have been created to analyze the trend in prices as well as area and productivity of emerging crops in the district. This has been analyzed against a selected criteria used to choose district crops in Parts I and II. The analysis has further been strengthened using insights from secondary research on crop trends in the recent years. Official secondary resources such as agmarknet.nic.in have been referred to, to strengthen the analysis.

iii. Validation of existing data: The information in the existing MSS has been validated in two ways:

a. Field visits: Through field visits and detailed discussions with various stakeholders across the value chain, data has been authenticated and validated. Some of the key discussions have been pertaining to:

i. APMC and Rural Haat infrastructure
ii. Agro processing industries and ginning factories
iii. Producer companies
iv. Grain storage facilities
v. Private markets and trade licenses
vi. Grade wise price variation and arrivals data
vii. Marketable and marketed surplus
viii. Constraints, strategies & proposed interventions for promoting market-led agriculture

The above methodology has enabled us to address some of the key gaps in the MSS and build a refined MSS report aimed at helping institutions understand the agriculture and market scenario in Buldhana. Data and information related to the agriculture scenario in Buldhana including detailed information on markets and marketing channels, APMC and Rural Haat infrastructure along with crop specific data has been collected. While the section on District profile has been further detailed out to include information on irrigation facilities, other sections have been added to the report to bring more clarity and understanding to the

marketing scenario of the district. Sections that have been included in this report are: Emerging major crops; Cropwise price variation for emerging crops; Farmer assessment focusing on availability of the services and post harvest practices followed; and a detailed section on Recommendations. However, data regarding dairy, livestock and other markets has not been looked into in this refined MSS document.

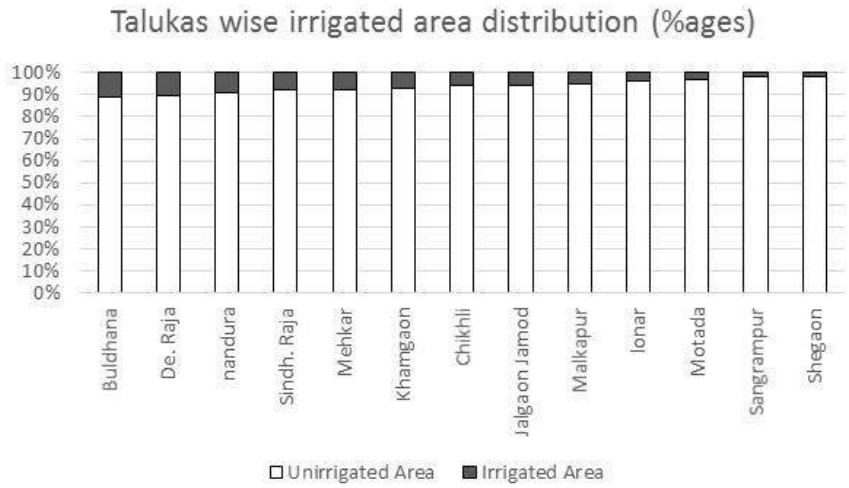
District Profile

Buldhana district, part of the Amravati division, is an agriculture-dominated district in the Western Vidarbha region. Madhya Pradesh borders it on the north; Jalgaon, Aurangabad and Jalna on its western side; Amravati, Akola and Washim on the east and Parbhani and Hingoli to the south. The NH-06, a major highway connecting Gujarat to Nagpur and eventually West Bengal passes through the Buldhana district, providing it good connectivity to major markets like Gujarat, Nagpur and through Nagpur to markets in the North and East.

Buldhana is the fourth poorest district in the state[1] with per capita income of INR 50,772. Around 75% of Buldhana's 430,188 farmers have small or marginal landholdings; the average Buldhana farmer owns 1.62 Ha of land, higher than the state average of 1.44 Ha but slightly lower than the Vidarbha average of 1.69 Ha[2].

Overall, access to irrigation is weak. Around 6% of gross cropped area is irrigated and hence farmers are largely rain-dependent[3]. The district generally experiences rainfall at around 700-800 mm a year. But Buldhana is also prone to droughts: for instance 747 villages in 7 blocks of the district were classified as drought affected in 2011-12 by the Government of Maharashtra[4].

[1] Economic Survey of Maharashtra 2012-13
[2] Agriculture Census 2010-11
[3] District Socio-Economic Survey. Note: latest data available is from 2002-03. Irrigated area has increased over the last 10 years but still remains low. In the absence of any new data, we are using this figure.
[4] NABARD PLP



Source: District Socio-Economic Review

Agro-climatic Features:

Soil:

The major portion of the Earth's crust in the district has been synthesized from the rock Basalt. Hence the majority of the soil in the district is black and fertile. Soils of AES III, IV and V are shallow and moderately deep while soils of AES-II are moderately deep and predominantly vertisols.

Climate:

The district mainly falls in the assured rainfall zone. Hence it receives Monsoon rain during June to October. The average rainfall of the district is 709 mm spread over 54 days. Buldhana district is a dry spell prone area and covers an uneven distribution zone of rainfall. Dry spells are observed from 15 August to 15 October which is an important period for Kharif season crops. In these days all major Kharif crops are in the reproductive stages.

Forest:

The forest in the district is spread over 0.766 lakh hectares, about 7.92% of the total district area. The blocks covered are Jalgaon (Jamod), Botha Abhayaranya of Buldhana and the bird sanctuary of Lonar. Major commercial species like Teak, Sandalwood, Anjan are grown in this forest.

Agro-climatic Zones:

The major part of the district agro climatically falls in the assured rainfall zone. The district is divided into three distinct topographical features.

	Soil Depth	Special Features	Annual Rainfall	Areas	Crops
Ghat Track	Heavy shallow to moderately deep	Undulating Topography; land slopes around 7%	750 mm - 850 mm	Greater part of the Buldhana district with talukas viz. Chikhli, Buldhana, Deulgaon Raja, Mehkar, Lonar, Malkapur, Sindkhed Raja, Motala and nandura.	Kharif - Sorghum, Soybean and Maize Rabi - Wheat, gram, safflower
Black Plains	Moderately deep and predominantly vertisole		750 mm - 900 mm	Khamgaon&Shegaon	
Saline Alkali Track	The soil is vertisol, deep and saline to saline alkali in reaction.		750 mm - 850 mm	Shegaon, Khamgaon, Malkapur& part of Jalgaon jamod, Sangrampurtalukas of the district.	

Agriculture:

The main kharif crops are cotton, jowar, red gram, moong, udid, soybean, sunflower, sesamum. Wheat safflower and gram are the major rabi crops.Cotton and soybean are the dominant crops, together accounting for 65% of total cultivated land. Soybean acreage has been increasing at the cost of cotton and other crops (gram, wheat and jowar) since production of soya are perceived to be cheaper and less risky. The average gross cropped area for the crops is given in the Table below.

Sr. No.	Crop	Average Gross Cropped Area (2009-13) (Ha)
1	Cotton	2,52,502
2	Soybean	2,50,946
3	Red Gram	75,010
4	Jowar	60,966
5	Bengal Gram	60,480
6	Maize	54,742
7	Mug	45,148
8	Wheat	44,255
9	Udid	43,937

Source: Department of Agriculture and Department of Horticulture, Government of Maharashtra

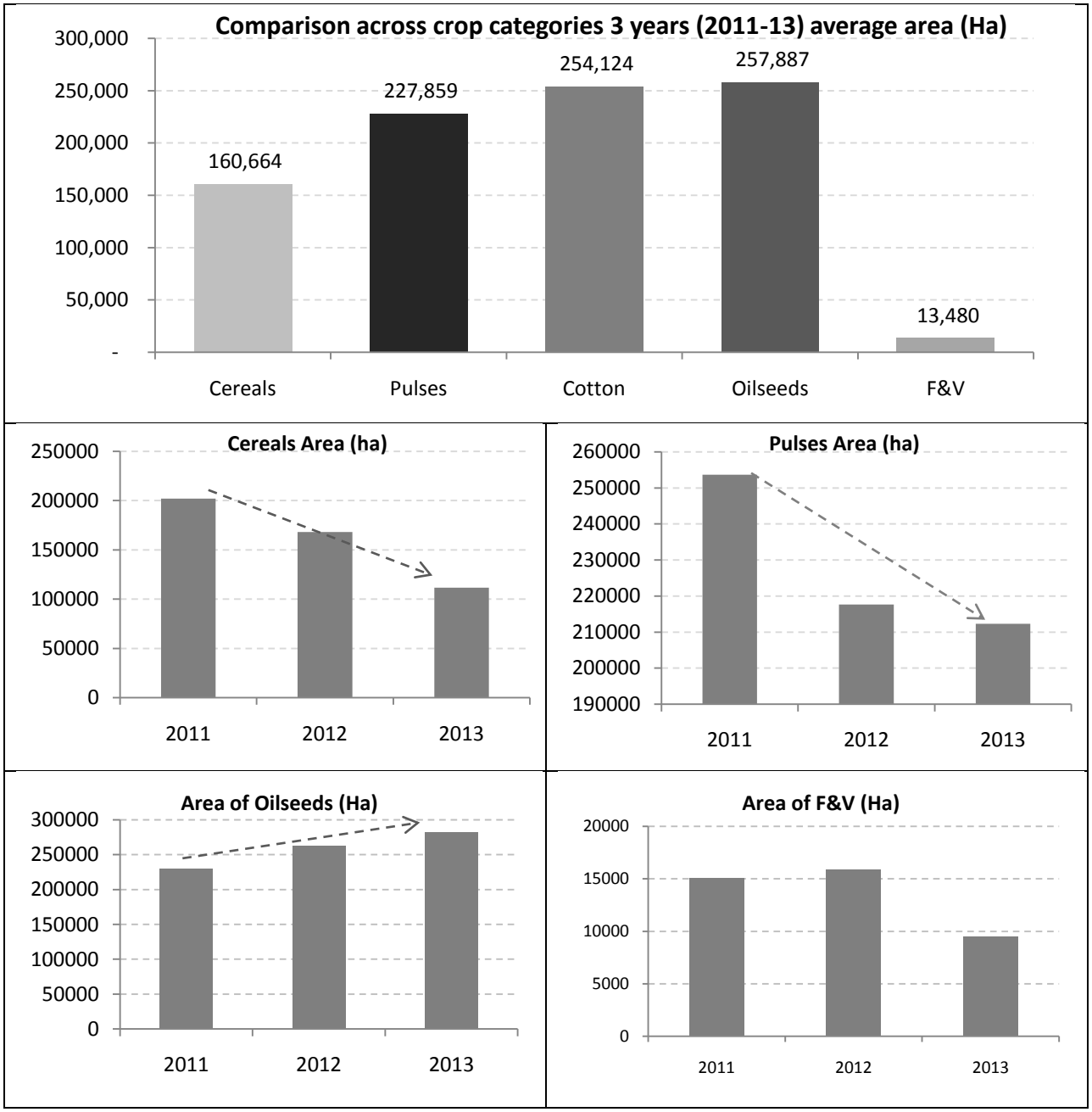
Even with hybrid seed production in the district, horticulture is weak. This is largely a result of the poor irrigation and relatively weaker post-harvest infrastructure in horticulture. As a percentage of gross cropped area, horticulture accounts for less than 2% of cropped area in the district. Within horticulture the important fruits and vegetables are oranges, pomegranate, banana, onions and brinjal.

Sr. No	Crop	Average Gross Cropped Area (2009-13) (Ha)
1	Orange	1668
2	Banana	1616

3	Sweet Orange	968
4	Custard Apple	821
5	Papaya	486

Source: Department of Agriculture and Department of Horticulture, Government of Maharashtra

The following charts depict the pattern of shift in the specific crop categories



Source: Dept of Agriculture and Dept of Horticulture, Government of Maharashtra. Note: Cotton is not included in Oilseeds

Cereals Trend: Major cereals in Buldhana are jowar and maize. They are used for both grains and fodder. Harvesting season for jowar is October, November and most of the farmers bring their produce to the markets in the period of October to December. In 2010-11, jowar production drastically went down due to unseasonal rainfall and attack of disease

Aphides, locally known as Mava. Wheat is grown as Rabi crop which depends on residual moisture or North-east rains. Wheat is harvested from March to May resulting in lower prices. If farmers store their produce in warehouses and avail loans against their warehouse receipts, they may sell their produce in December and could get better prices.

Pulses trend: Pulses are typically intercropped and seldom cropped individually. Red gram is taken as an intercrop with cotton and soybean under rainfed conditions. Bengal gram is grown on a larger scale as Rabi crop along with other pulses. Vidarbha region is the production hub of pulses due to favorable agro-climatic conditions. Total demand for pulses in India is fulfilled by importing pulses from Canada, Tanzania, Myanmar. Promoting pulse production will help grow the local market.

Oilseeds trend: Soybean is the major rainfed oilseed crop. The area under cotton is being captured by soybean due to shorter cycle, better market prices, and better profitability from two crops per season. Cotton seeds are also used for extraction of oil which can be used for many industrial purposes.

F&V trend: In Deulgaon Raja & Sindkhed Raja blocks, many farmers are cultivating vegetables under controlled/shednet conditions. This is done mostly for the purpose of seeds production for seed companies based in Jalna district. These two blocks are near to Jalna, which is the hub of the seed production companies. Seed companies from Jalna prefer these blocks and enter into agreements with farmers to buy back the produce. The agro climatic conditions and water scarcity doesn't allow cultivation of these crops in other blocks.

Animal Husbandry: Livestock population shows a negative growth trend in the recent years. The total livestock population of the district is 13.61 lakh of which there are 1.24 lakh (9.15%) cows and bullocks, 0.5 lakh (3.6%) buffaloes, 0.9 lakhs (6.8%) sheep, 0.9 lakhs (20.8%) goats and 3.96 lakhs (20.1%).Raising of cows and buffaloes for milk and milk product is a prominent feature among the farmers in the Nandura taluka of the district. Khoa is milk product of this taluka which is supplied to other districts also. The animal husbandry industry has special significance in the agriculture dominated economy of the district, as it provides supplementary occupation to the large number of small and marginal families. However, availability of green and quality fodder all around the year is a major constraint due to hot and dry climate and lack of irrigation facilities in the district. Hence majority of the dairy farmers feed their dairy animals by grazing.

Agro Industries: The district economy is predominantly agro based. A number of ginning and pressing units for cotton, oil mills and mini-dal mills are working in the district. The

district seems to be industrially backward and there is no major industrial production unit working in the district. Though forest products are available in the district as raw material, basic industries utilizing these products as raw material are not established till now. There is one mix fertilizer plant. Sugar industry in the district shows a prominent impact in the district. Shivashakti and Jijamata sugar Industry in co-operative sector have collapsed. The private sector industries like Sharangdhar, Anuradha at Dhad, Vaishnavi at Shendurjan arehowever growing. The Shivshakti Co-operative Sugar Mill was under development and later handed over to private sector for further development.

Emerging major crops in the district

On the basis of existing as well as expanding area and changing crop trends, we have selected the soybean, cotton, bengal gram, red gram and maize as the emerging major crops in the district. In Buldhana district, there is an overall trend of gradual shift from cotton to soybean.The following table depicts the major trends in cropping pattern over the last 5 years for these 5 key crops of the district.

Area under cultivation (Ha)

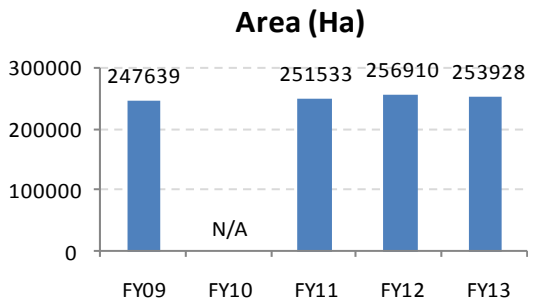
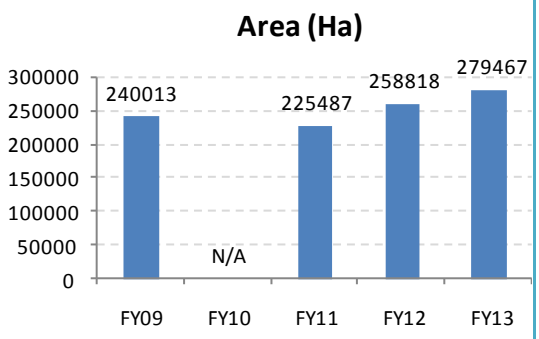
	Soybean	Cotton	Bengal Gram	Red Gram	Maize
2012-13	279,467	253,928	44,295	84,061	15,618
2011-12	258,818	256,910	48,111	79,534	57,230
2010-11	225,487	251,533	74,224	76,811	66,217
2009-10	212,800	239,400	75,300	62,100	84,900
2008-09	240,013	247,639	63,500	59,600	54,914

Source: Department of Horticulture, Government of Maharashtra

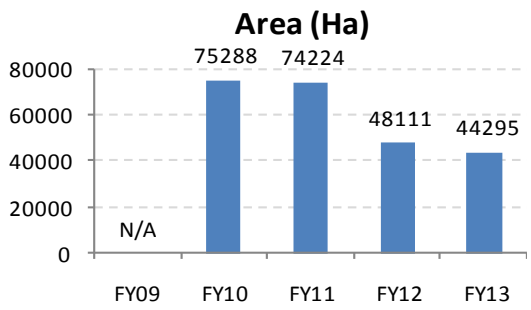
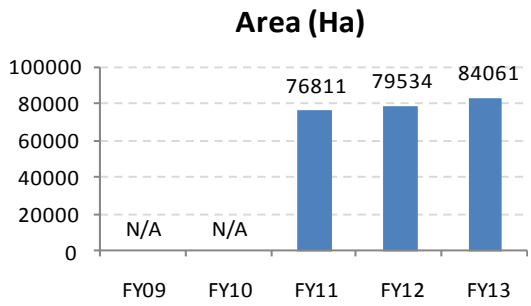
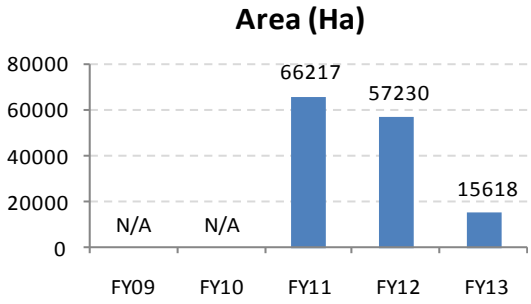
In the last 5-8 years, there has been a shift in cultivation from cotton to soybean and redgram. Farmers have realized that the risks associated with cotton are much higher as compared to soybean, since cotton is more susceptible to pest attacks and has high cultivation costs and requires manpower. Red gram is often used as an intercrop with soybean. In Rabi season, bengal gram is the most preferred crop. The combination of soybean (Kharif) and bengal gram (Rabi) gives higher revenue as opposed to growing a single crop of cotton.

Maize, though it's acreage has fallen in recent years, could present a potential value enriching opportunity for Buldhana farmers. Maize as a crop has seen significant increase in demand, primarily for use in poultry (which is already a fast growing industry; growing at

10% annually[5]) and the starch industry. Buldhana is located near the 'poultry belt' of Maharashtra (north-west Maharashtra – particularly districts of Nandurbar, Dhule, Jalgaon and Nashik), suggesting a ready market close to home. Having said that, at the moment there are not too many poultry feed manufacturers in Buldhana and hence most poultry feed is available from major towns such as Nagpur or Nashik. But this could also be a potential opportunity; since a combination of growth in Maize production along with promotion of Maize based poultry feed manufacturing could foster growth of Poultry inputs industry in the District. Being on the NH6, Maize from Buldhana can also potentially cater to the starch factories in Gujarat. That Buldhana's climate and soil conditions suit maize production, as well as the fact that it can also be grown in rain-fed conditions (thus the lack of irrigation is not a constraint) is an added benefit.

Crop Selection	Key Trends	Area Trend
Cotton	• The area under cotton has started seeing a downward trend in the last 2 years with increase in soybean. • Low rainfall in 2010-11 resulted in a major fall in cotton production & many farmers faced huge losses, due to their high cost of cultivation and high risks associated with the crop.	
Soybean	• The soybean area decreased from FY09 to FY11 but has seen a rapid rise from FY11 to FY13 with CAGR of 11%. • Soybean is a short duration crop compared to cotton (up to 110 days), which enables farmers to cultivate pulses like gram. • Soybean followed by gram or any other pulse is becoming profitable for farmers rather than a single crop of cotton.	

[5] Source: Business Standard Report | 10th August 2013 | "Is Maize India's New Wonder Crop"

Bengal Gram	• The area has decreased more than 40% from FY 10 to FY13. • Imported gram mostly Australian chick pea has filled up the demand supply gap for pulses like gram and this has reduced any advantages of carrying gram for lean season.	
Red Gram	• The area has steadily increased in the last 3 years • Traders/processors from processing hubs are sourcing red gram from Buldhana	
Maize	• The cultivable area of Maize has decreased by almost 76% from FY 11 to FY 2013.	

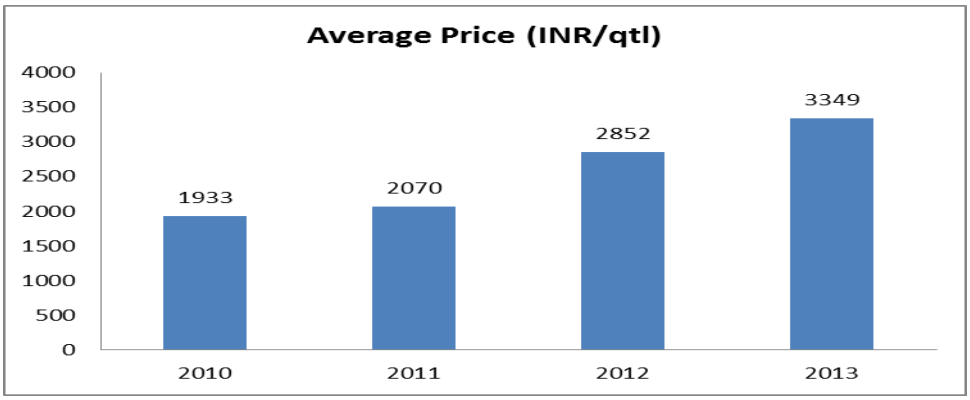
Source: Dept of Agriculture and Dept of Horticulture, Government of Maharashtra

As noticed from the analysis above, there has been a major shift in cultivation in crops such as from cotton to soybean and red gram. This helps us understand the dynamics of the market as well as understand the demand from the market. It may be inferred that some of the main reasons for the popularity of crops such as soybean are market driven- i)high demand from processing units such as soy processing plants, ii) high prices for these commodities in the market. While market led production is one of the key reasons for the popularity of these crops, the ability to grow two crops and hence generate revenue from two crops has also largely contributed to the popularity of soybean and gram in the district.The next section helps us further understand the five emerging crops in terms of their arrival data in APMCs across the district and analyse their price variations.

Crop-wise price variation for emerging crops

Based on the analysis generated using pivot tables comprising of market arrival data for the emerging crops, the following analysis has been generated.

District Price Variation versus State Average: Soybean



Source: MSAMB

- The chart compares the average monthly price of soybeanfor a selected group of APMCs over the last 4 calendar years.
- The district average price has shot up post 2011 and has become 1.7 times the average price of 2011.

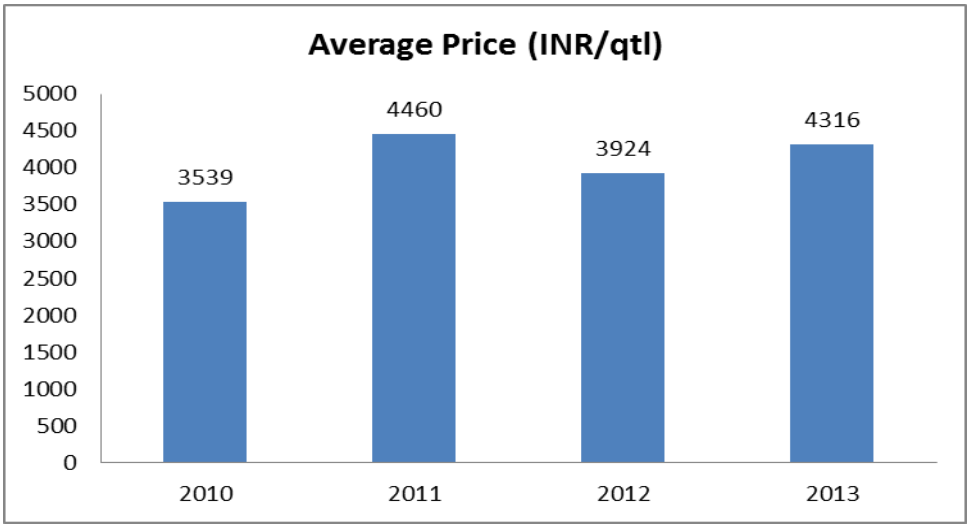
Price Variation among local APMCs(2013): Soybean

APMC	Sum of Arrivals (Qtl)	Avg. Price (INR/qtl)
BULDHANA	2915	3101
CHIKHLI	66057	3197
DEULGAON RAJA	49280	3004
JALGAON JAMOD	28257	2994
KHAMGAON	561425	3398
LONAR	594437	3394
MALKAPUR	33108	3196
MEHKAR	152391	3496
MOTALA	NA	3350
NANDURA	53116	3056
SANGRAMPUR	23291	3156
SHEGAON	64271	3101
SINDKHED RAJA	790	3380

Source: MSAMB

The average price for soybean in 2013 was lowest in the Deulgaon Raja and JalgaonJamod APMCs while it was significantly higher in Mehkar, Lonar and Khamgaon.

District Price Variation versus State Average: Cotton



Source: MSAMB

- The chart compares the average monthly price of cotton for a selected group of APMCs over the last 4 calendar years.
- The district average price for cotton has been volatile, reaching higher levels in 2011 and 2013 and lower levels in 2010 and 2012.

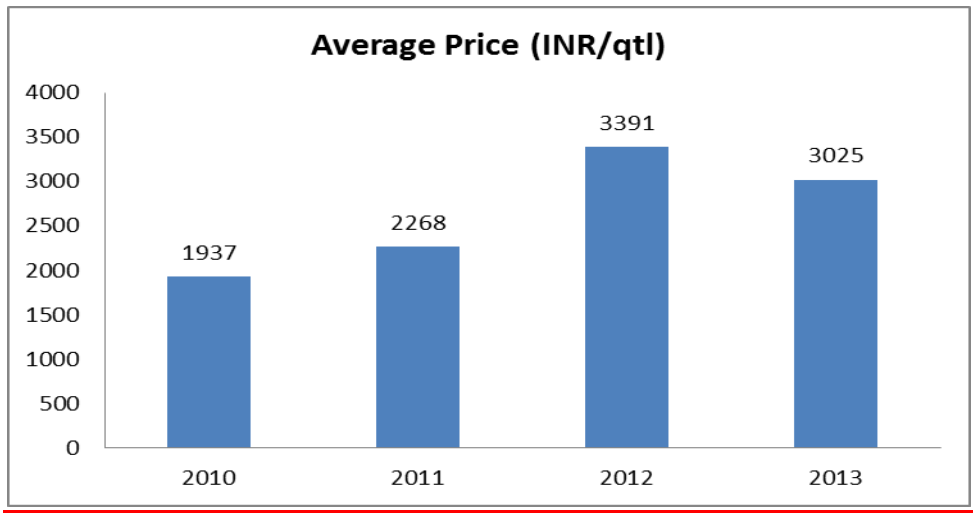
Price Variation among local APMCs(2013): Cotton

Row Labels	Sum of Arrivals (Qtl)	Avg. Price (INR/qtl.)
DEULGAON RAJA	356419	4299
KHAMGAON	18212	4634
SHEGAON	NA	4929

Source: MSAMB

Only few APMCs see cotton arrivals as most of the cotton produce is purchased directly from producers

District Price Variation versus State Average: Bengal Gram



Source: MSAMB

- The chart compares the average monthly price of bengal gram for a selected group of APMCs over the last 4 calendar years.
- The average price for bengal gram suffered in 2013 after increasing from 2010 to 2012.

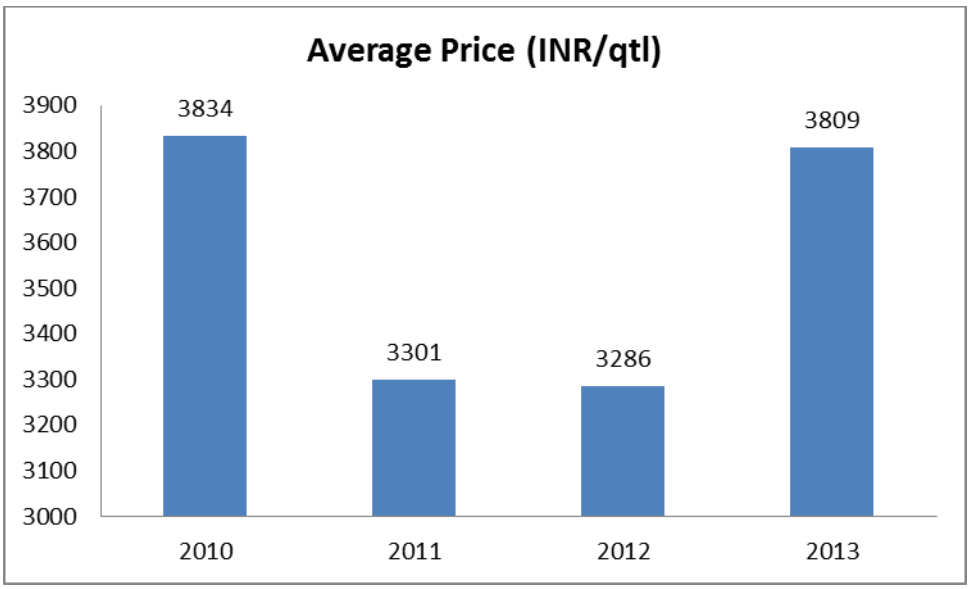
Price Variation among local APMCs(2013): Bengal Gram

APMC	Sum of Arrivals (Qtl)	Avg. Price (INR/qtl)
BULDHANA	523	2972
CHIKHLI	5973	2781
DEULGAON RAJA	1883	2922
JALGAON JAMOD	2340	2857
KHAMGAON	115770	3054
LONAR	68230	3017
MALKAPUR	1225	2819
MEHKAR	41562	3049
MOTALA	NA	NA
NANDURA	1312	2626
SANGRAMPUR	7632	2727
SHEGAON	29602	3068
SINDKHED RAJA	NA	3151

Source: MSAMB

The average monthly priceswere similar across APMCs with the highest at Sindkhed Raja and lowest at Nandura showing a difference of about 500 INR/Qtl.

District Price Variation versus State Average: Red Gram



Source: MSAMB

- The chart compares the average monthly price ofred gram for a selected group of APMCs over the last 4 calendar years.
- The average district price for red gram witnessed a significant fall in 2011 and 2012 but recovered to its 2010 level in 2013.

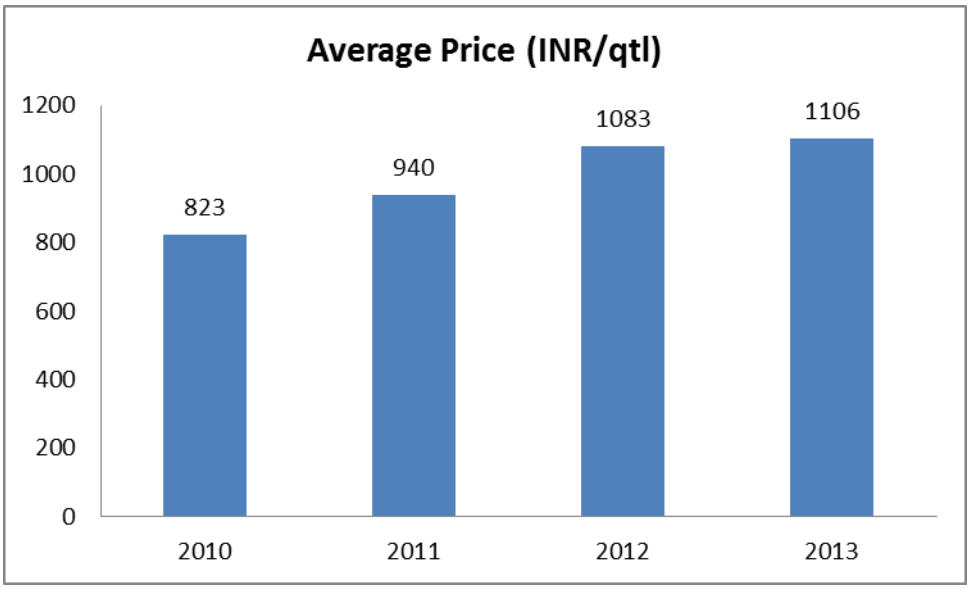
Price Variation among local APMCs(2013): Red Gram

APMC	Sum of Arrivals (Qtl)	Avg. Price (INR/qtl)
BULDHANA	200	3660
CHIKHLI	5188	3892
DEULGAON RAJA	5612	3736
JALGAON JAMOD	23953	3494
KHAMGAON	252755	3892
LONAR	47254	3763
MALKAPUR	6515	4188
MEHKAR	9256	4030
MOTALA	82	3952
NANDURA	1104	3956
SANGRAMPUR	42823	3611
SHEGAON	27160	3744

Source: MSAMB

The arrivals in the Khamgaon APMC were 5 times that of the nearest APMC in terms of arrivals in 2013. Malkapur APMC had the highest average monthly price at 4188 INR/Qtl

District Price Variation versus State Average: Maize



Source: MSAMB

- The chart compares the average monthly price of maize for a selected group of APMCs over the last 4 calendar years.

- The increase in price has been steady over the 4 years.
- The district average price in 2013 has increased by 25% compared to 2010.

Price Variation among local APMCs(2013): Maize

APMC	Sum of Arrivals (Qtl)	Avg. Price (INR/qtl)
BULDHANA	210	1265
CHIKHLI	1940	1282
DEULGAON RAJA	8021	1076
JALGAON JAMOD	13285	1059
KHAMGAON	9336	1156
LONAR	380	1166
MALKAPUR	9444	1112
MEHKAR	706	1186
MOTALA	284	1278
NANDURA	5933	1084
SANGRAMPUR	48	1134
SHEGAON	176	1100
SINDKHED RAJA	340	1216

Source: MSAMB

The average monthly price in 2013 was nearly uniform across all APMCs showing a maximum deviation of 10% from the district average monthly price.

The above analysis on the average price and the arrival data of the five emerging crops of the district helps us understand the supply dynamics at the APMCs. As seen from the above discussion, most APMCs where the arrivals are high for the commodities also give the farmer producers a relatively higher price. The higher price realization may be attributed to the higher demand in APMCs owing to the presence of processing units and industries close by. However, in order to encourage further development and production of the five emerging crops of the district, it is important to also understand the current production practices of farmers on the basis of which best practices for crop cultivation can be recommended and extension services designed and planned. The next section of this report discusses the production practices of farmers in the district.

Farmer assessment: Package of practices and post-harvest management

Based on our interaction with farmers, certain best practices have emerged. Overall, we have observed that only a small percentage of farmers follow the recommended Package of Practices. For most of the crops, less than 5% farmers get soil testing done. Practices like Integrated Pest Management, disease management and Integrated Weed management are not adopted by farmers and they prefer to use chemical control methods instead of these much advanced biological treatment methods. Major reasons for not following the key Package of practices are lack of awareness and lack of willingness of farmers.

Best Postharvest Management Practices

Practice	Soybean	Cotton	Bengal Gram	Red Gram	Maize
Sundrying					
Packaging					
Terminal and Wholesale market					
CA/MA Storage Packaging					
ApniMandi					
Cold Chain					

Cold chain and apni mandi facilities are not available for crops in Buldhana. Overall, through our discussions with farmers, it was noticed that most farmers give importance to cleaning and grading since they associate these post harvest practices with better price realization. Approx 50% of the farmers interviewed by us who grow cereals and pulses cleaned their produce. Sorting and grading are done by some of the farmers, but for fruits and vegetables only. For soybean it is primarily done by the NSC.

Usability of available PHM equipment and machineries:

PHM Equipment / Machinery	Degree of Usability	Barriers to usability
Warehouses & Godowns	70%	Mostly used by traders. Only 5-10% used by farmers regularly due to lack of nearby warehouses and lack of finance
Space for Sorting & Grading	0%	Not Required Only required for turmeric (boiling and drying)
Refrigerated Vans	0%	Not Required

The usability of warehouses and godowns by farmers in Buldhana is quite low but such facilities are mainly used by traders. The lack of proximity to warehouses and the lack of finance are the major reason for farmers not utilizing the warehouses. From our interactions

with various farmers and APMC officials, we gathered that only 5% of farmers always use warehouse facilities, while 30% of the farmers have never used warehouse facilities.

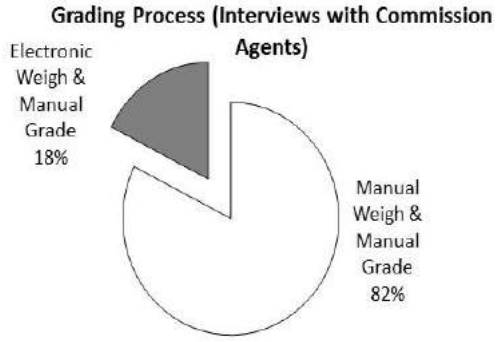
Grading

Grading in the district is mainly manual. Even though grading and sorting facilities are not very well developed, APMCs across the district have installed some facilities for grading & sorting but those are limited to sieves. Grading of the produce is mostly done by visual inspection. While manual grading is not based on a new set of grades, the method of grade assessment is based on a set of established thumb rules and estimates developed by the traders and commission agents over long years of experience. Some examples of manual grade assessment are as follows:-

- Staple length of cotton is measured by comparing the length of a single strand of fibre with the middle phalanx of the index finger. Traders have a view about what constitutes 29 mm when compared to their own hands.
- Similarly, moisture content in cotton and all other crops is measured by biting the seed. A seed which breaks easily with a cracking sound is considered to be of perfect moisture level (9%).
- Moisture levels typically need to be maintained at 9-10% for maximum recovery. While very high moisture leads to further weight losses, very low moisture can damage the machinery. Low moisture is typically detected by a seed than is difficult to break when bitten.
- In cereals and pulses, the size of the grain, uniformity of the grain size across the sample as well as boldness of the colour is also an important factor. For instance, in Red Gram large and bold red coloured grains are rated above smaller and lighter coloured grains.
- Damage to grains is another factor that is important. Often crops which are harvested using machine harvesting have scratches on the grain and hence command a relatively lower price than those harvested by hand.
- Last, amount of thrash, foreign matter and other edible grain (for instance soya grains in a red gram sample) is another determinant of grade of the produce. While certain foreign matter such as twigs, leafs etc – to a manageable extent – is tolerable, edible grains and large amount of rocks, soil etc is graded low.

Grading in the district's APMCs is almost entirely a manual process. While weighing is done through electronic weighing machines, but after that commission agents typically grade the produce based on visual inspection. There can be significant variation

between grades, for instance there are three grades of soyabean available with a price swing of 16% between the lowest and highest grades[6]. The general perception amongst farmers is that electronic grading is negative: farmers believe electronic grading systems create opportunities for deception by traders and agents. Meanwhile, electronic grading systems are costly and hence commission agents are unwilling to invest especially as farmers and traders are unlikely to bear the extra cost of grading.



- Source: Farmer survey and commission agent survey

Bengal gram[7]: Bengal gram is graded on the basis of availability of foreign matter, admixture, damaged grains, discoloration, broken and % of moisture in the grain.General characteristics of AGMARK grading specification under agriculture produce (Grading and Marketing) Act, 1937 are described in table below;

- Be the processed splits of mature, dried, whole grains of Cicer Arietinum.
- Have reasonably uniform size, shape and colour, characteristic of the variety/ form.
- Be sweet, clean, whole-some and free from moulds, weevils, obnoxious smell, discoloration, admixture of deleterious substances (including added coloring matter)and all other impurities except to the extent indicated under special characteristics;
- Be in sound merchantable condition;
- Not have moisture exceeding 12% and
- Have good cooking quality.

Maize[8]: Under Agriculture Produce (Grading and Marking) Act1937, the national standards for maize are notified, considering the quality factors like a) moisture b) foreign matter c) other food grains d) mixture of other varieties e) damaged grains f) immature grains g) weeviled and shrivelled grains.

[6] Gradewise swing estimated on average annual prices to rule out intra-year fluctuations.
[7] Commodity profile submitted by Global Agri
[8] Commodity profile submitted by Global Agri

	Moisture	Foreign Matter		Other edible grains	Admixture of different varieties	Damaged grains	Immature and shrivelled grains	Weevilled grains (% by count)
		Organic	Inorganic					
Grade I	12.00	0.10	Nil	0.50	5.00	1.00	2.0	2.0
Grade I	12.00	0.25	0.1	1.00	10.00	2.00	4.0	4.0
Grade III	14.00	0.50	0.25	2.00	15.00	3.00	6.0	6.0
Grade IV	14.00	0.75	0.25	3.00	15.00	4.00	6.0	8.0

Source: AGMARK

Cotton[9]: The East India Cotton Association (EICA) maintains official standards for each of the commercially grown varieties as per the schedule during each season. The EIC maintains official standards of different staple length ranging from 20 to 42 mm:

S.No.	Category	Length in (mm)
1	Short staple	19.5mm and below
2	Medium	20.0 to 21.5mm
3	Superior	22.0 24.0mm
4	Long staple	24.5 to 26.5mm
5	Superior	27.0 to 29.5mm
6	Extra long	30.0mm and above

Soybean[10]: Farmers rarely grade soybean grains. They only clean and remove diseased, damaged, foreign matter from the grains. Farmers check moisture content in soybean by biting into the grain. To separate diseased, damaged and foreign matter from healthy grain, farmers use sieves. Traders buy grains on the basis of physical appearance, colour, size and quantity of foreign material in the grain heap.

Red Gram[11]: The grade standards specified for Red gram whole and split notified by the Directorate of Marketing and Inspection are given below:

[9] Commodity profile submitted by Global Agri
[10] Commodity profile submitted by Global Agri
[11] Commodity profile submitted by Global Agri

Grade designation	Maximum limits of tolerance (per cent by weight)					
	Moisture	Foreign Matter		Other edible grains	Damaged grains	Weevilled grains percent by count
		Organic	Inorganic			
Special	10.0	0.10	Nil	0.5	0.5	3.0
Standard	12.0	0.50	0.10	2.0	2.0	5.0
General	14.0	0.75	0.25	5.0	5.0	10.0

Note: *In foreign matter, the impurities of animal origin shall not be more than 0.10 percent by weight*

Grade specification and definition of quality of split husked Red Gram (Arhar/Tur) pulse under Agmark

Grade designation	Maximum limits of tolerance (per cent by weight)						
	Moisture	Foreign Matter		Other edible grains	Damaged grains	Broken grains	Weevilled grains percent by count
		Organic	Inorganic				
Special	10.0	0.10	Nil	Nil	0.5	2.0	1.0
Standard	12.0	0.50	0.10	0.2	2.0	5.0	2.0
General	14.0	0.75	0.25	0.5	5.0	8.0	3.0

Note- In foreign matter, the impurities of animal origin shall not be more than 0.10 percent by weight

Package of Practices and Post-Harvest Management

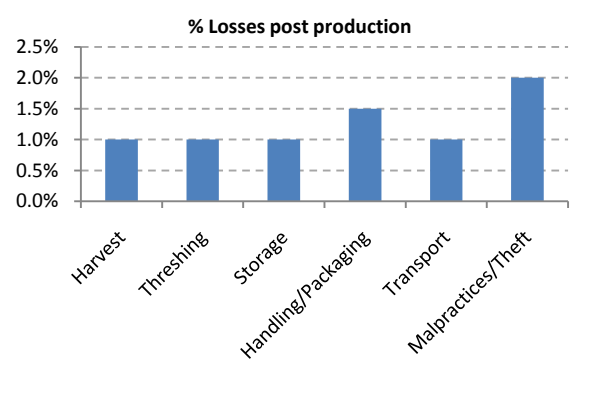
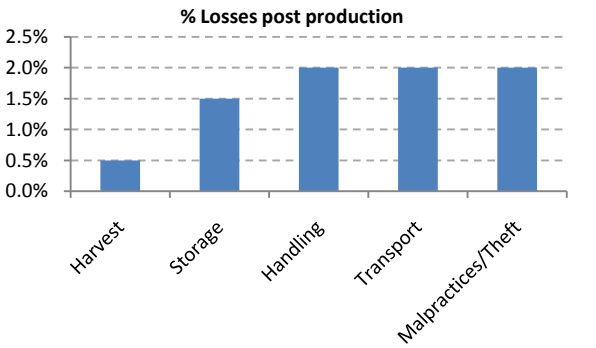
	Package of Practices (PoP)	Degree/ Comments	Post-Harvest Management (PHM)	Degree/ Comments
Awareness	Awareness of recommended PoP	YES	Awareness of recommended PHM	MEDIUM
	Farmers following PoP	80%	Farmers following PHM practices	MEDIUM
Affordability	Degree of affordability	100%	Degree of affordability	MEDIUM
Availability	Ease of availability of information	HIGH	Usability of available facilities	MEDIUM
			Reasons for non-usability:	
			1. Dilapidated structure	
			2. High Cost	
			3. Lack of willingness	YES
Accessibility	Ease of accessibility of information	HIGH	Accessibility to PHM facilities	MEDIUM
			Reasons for inaccessibility:	
			1. Lack of awareness	2
			2. Distance	High
			3. Paperwork/Cost	HIGH COST

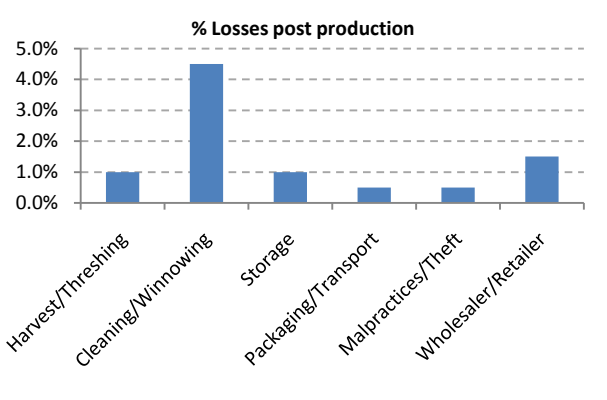
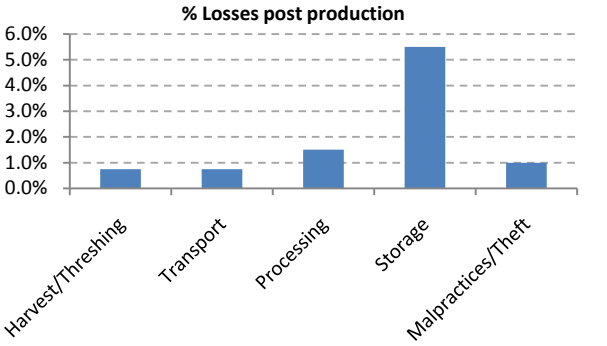
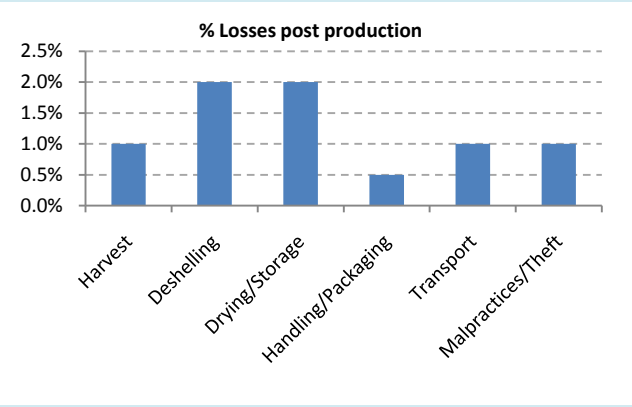
Farmers in Buldhana district are adopting traditional Post-Harvest techniques for each of the major crops. As detailed in the table below some of the most common reasons for Post-

Harvest loss across crops is lack of proper storage facilities and infestation by pests and rodents Post-Harvest.

Crop	Major reasons for Loss
Soya Bean	Harvest & Threshing Loss, Improper storage- Storage grain pest Handling & Transport Loss
Cotton	Harvesting Loss-Wrong timing and Handling and transportation losses
Gram/Chickpea	Harvest & Threshing Loss, Improper storage- Storage grain pest Handling & Transport Loss
Red Gram	Harvest & Threshing Loss, Improper storage- Storage grain pest Handling & Transport Loss
Maize	Harvest & Threshing Loss, Improper storage- Storage grain pest Handling & Transport Loss

Specific quantification of post-harvest loss (based on farmer interaction) is provided below for the major crops:

Crop	Reasons for major loss	
Soya Bean	1. Harvest – 1% 2. Threshing – 1% 3. Storage – 1% 4. Handling/Packaging – 1.5% 5. Transport – 1% 6. Malpractices/Theft – 2%	
Cotton	1. Harvest – 0.5 % 2. Storage – 1.5% 3. Handling – 2% 4. Transport – 2% 5. Malpractices/Theft – 2%	

Bengal Gram	1. Harvest/ Threshing – 0.5-1% 2. Cleaning – winnowing –4-5% 3. Stoareg – 0.5-1% 4. Packaging & transporatation –0.3-0.5% 5. Malpractices/theft – 0.2-0.5% 6. Wholsaler-Retailer – 1-2%	
Red Gram	1. Harvest/ Threshing – 0.5-1% 2. Trasnportation – 0.5-1% 3. Processing – 1-2% 4. Storage – 5-6% 5. Malpractices/theft – 0.5-1%	
Maize	1. Harvest – 1% 2. Deshelling – 2% 3. Drying/Storage – 2% 4. Handling/Packaging – 0.5% 5. Transport – 1% 6. Malpractices/Theft – 1%	

Based on our interaction with various farmers and stakeholders, it is observed that some of the major causes of post-harvest losses are handing, storage and transportation. While the reasons and practices are fairly well recognized, the adoption rate of practices by farmers is very poor. During the farmer interactions, it was observed that over 60% of the farmers used at best one of the above PHM practices. A significant 40% did not use any PHM practices.

Existing Marketing Scenario in the District

Major food grains in the Buldhana district are jowar, pearl millet, wheat, red gram, moong, udid and bengal gram. Major oilseeds are soybean, sunflower and groundnut while cotton and maize are the major cash crops. Cotton is by far the most important commercial crop in Buldhana district. Khamgaon is the biggest cotton market in this district, and is said to be one of the most important cotton markets in Maharashtra. Khamgaon, followed by Malkapur, is an important exporting centre of cotton and maize. Malkapur followed by Shegaon, Nandura, Chikhli, Deulgaon raja, Mehkar and Jalgaon jamod arecenters of cotton trade. The entire cotton produced in the district is exported after ginning and pressing. The cost of ginning and pressing comes to about Rs. 19 and Rs. 16, respectively, per cotton bale. The other commodities exported from the district are chilli, cotton seed, ground-nut oil and banana. Malkapur is the principal centre of exports of chilli,maize and banana which are sent to Nagpur, Akola and Amravati. Cotton seed is exported from most of the centers of cotton ginning and pressing industry, the major among them being Khamgaon, Malkapur, Shegaon and Nandura. With the expansion of the Vanaspati oil industry, the demand for cotton-seed oil has increased considerably. Though Buldhana seems to be a major producer of cotton, maize and soybean, it has not grown into a processing hub until now. There is a tremendous scope to develop Buldhana as a processing market as most of the produce is sold to processors coming from Gujarat, Madhya Pradesh, Andhra Pradesh, Tamil Naduand rest of the India.

Agriculture Produce Market Committees (APMCs)

There are 13 APMCs in the district, one in each taluka. The study of APMC's in Buldhana has been done for project development objectives such as analysing present marketing condition, structure, constraints, farmer's issues, traders issues, development in APMCs in relation to farmers and traders, arrivals of major commodities, marketing situation of various commodities, marketing efforts taken by APMCs, SWOT analysis of APMCs, facilities given by APMCs to the farmers such as Auction Hall, Electronic Weighing Balance, Sanitation, Canteen, Loan & transaction facilities, Grading & Cleaning of Farm Produce, Credit facility, Technical guidance, fertilizers & pesticides Procurement, Contract farming scenario, understanding competitors of APMCs and many other issues which were previously not covered. In Buldhana, 13 APMCs are there, namely Buldhana, Motala, Malkapur, Khamgaon, JalgaonJamod, Sangrampur,Lonar,Sindkhedraja, Deulgaon Raja, Chikhli, Mehkar, Nandura and Shegaon.

Sr. No.	Name Of APMC	Average Annual Arrivals (2010-2013) in Qtls	Average Annual Value of Produce (2010-2013) in (Rs. Lakhs)	Major commodities sold
1	Buldhana	34205	657	Maize, Soybean, Cotton, Sunflower, Gram, Wheat, Red Gram, Green Chilli
2	Chikhli	255960	6005	Wheat, Maize, Toor, Gram, Moong, Soya, Chilly, Cotton
3	Deulgaon Raja	397608	14072	Sorghum (Jowar), Pearl Millets (Bajra), Wheat, Split Green Gram, Black gram (Urad), Red Gram (Tur), Maize, Soybean
4	Jalgaon Jamod	100889	2530	cotton, jowar, wheat, udid, mung, gram, red gram, maize, til, sunflower, ground nut, lemon, onion, banana, vegetable etc.
5	Khamgaon	1359276	35695	Sorghum (Jowar), Wheat, Maize, Gram, Soybean, Horsebean (Udid), Split Green Gram (Moong), Pigeon Pea (Toor), Sunflower
6	Lonar	461488	13374	Pearl Millet (Bajra), Udad, Split green Gram (Moong), Red Gram, Soybean, Wheat, Gram, Sunflower, Sorghum (Jowar), Cotton
7	Malkapur	169290	4691	Wheat, Sorghum (Jowar), Maize, Pearl Millet (Bajra), Gram, Pigeon Pea/Redgram (Tur), Split Green Gram (Moong), Horsebean/Black Gram (Urad), Sesame (Til), Soybean, Dry Chilly, Green Chilly, Onion, Cotton
8	Mehkar	278917	7910	Green Gram (Moong), Black Gram (Urad), Gram, Soybean, Sorghum (Jowar), Wheat, Split Red Gram (Tur), Maize
9	Motala	12091	176	Jowar, Wheat, Chilly, Red Gram, Green gram, Maize, Green chilly
10	Nandura	172317	4210	Jowar, Wheat, Maize, Gram, Soybean, Onion, Vegetable
11	Sangrampur	71084	1643	Cotton, Bajra, Wheat, Jowar, Maize, Gram, Moong, Red Gram, Urad, Groundnut, Soybean, Sunflower seeds, Banana, Onion, Rice
12	Shegaon	221878	5825	
13	Sindkhed Raja	3668	81	Soybean, Jowar, Cotton, Udid, Red Gram, Wheat
	Total	3538670	96869	

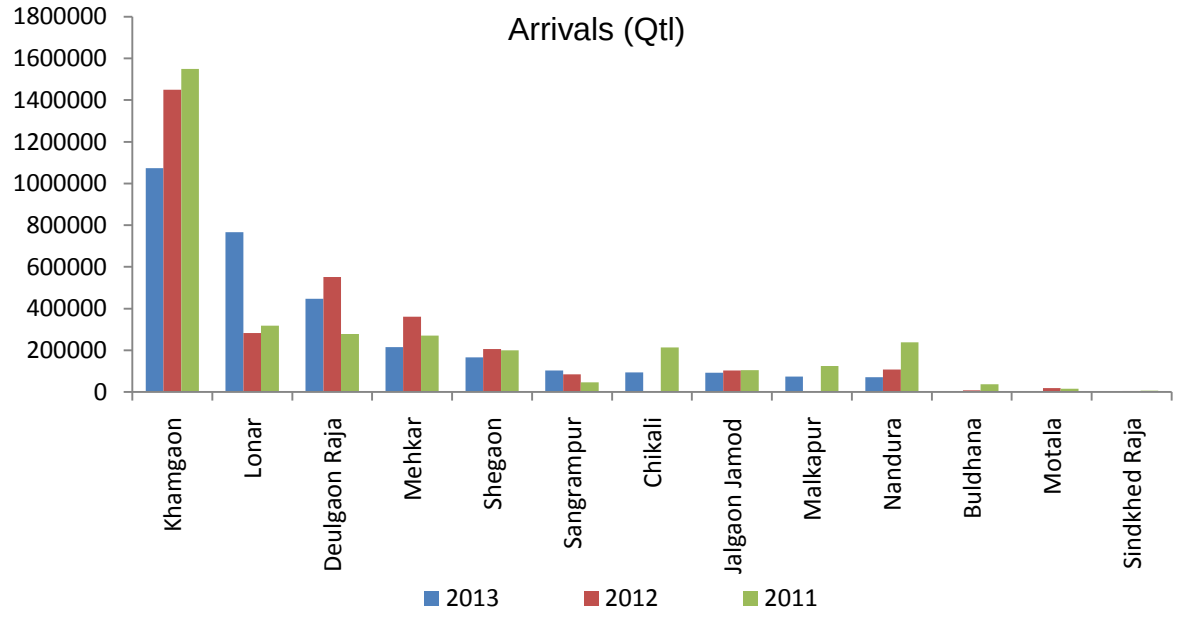
Source:MSAMB

Market-wise Trend Analysis of Market Arrivals (in Qtl)

APMC	2013		2012		2011		2010	
	Total Arrivals	% of total	Total Arrivals	% of total	Total Arrivals	% of total	Total Arrivals	% of total
Buldhana	4355	0%	8293	0%	37032	1%	83649	2%
Chikhli	94812	3%			213498	6%	459569	11%
Deulgaon Raja	447281	14%	551909	17%	277699	8%	313543	8%
Jalgaon jamod	92971	3%	102919	3%	103748	3%	103919	3%
Khamgaon	1073993	34%	1450446	46%	1550077	46%	1362587	34%
Lonar	767597	25%	282377	9%	317516	9%	478461	12%
Malkapur	74737	2%			123704	4%	309430	8%
Mehkar	215505	7%	360292	11%	270414	8%	269458	7%
Motala	2042	0%	18961	1%	15442	0%	11917	0%
Nandura	71366	2%	106824	3%	237651	7%	273427	7%
Sangrampur	103939	3%	84892	3%	45724	1%	49781	1%
Shegaon	166522	5%	205044	6%	199929	6%	316015	8%
Sindkhed Raja	1170	0%	4960	0%	5966	0%	2575	0%
Total	3116290	100%	3176917	100%	3398400	100%	4034331	100%

Source: MSAMB

Market-wise Trend Analysis of Market Arrivals



Source: MSAMB

The above graphs show the average annual market arrivals and value for the last 4 years of the 13 talukas. The following observation can be drawn.

- Clearly, Khamgaon and Lonar have the highest Annual collection in 2013. They renovated their APMC in 2007 spending around 25 crores and has since then been doing very well.
- The Arrival of commodities is also highest in Khamgaon and Lonar.
- Sindkhed-raja and Motala seem to be very small markets. This is also due to its proximity to bigger APMCs. Sindkhed raja is very close to Deulgaon raja and Lonar and thus farmers prefer to take their produce to bigger APMC, hoping for more number of traders and a better price. Motala is close to Malkapur and thus has lower arrivals as well.

In terms of structure, an APMC typically has Directors supervising the day to day activities of the APMC. Given below is the organizational structure for Buldhana APMC.

Source: MSAMB

Rural Haats (RH)

There are around 350 Rural Haats (RHs) in the Buldhana district. Around 75% of the produce from the rural haats is bought by wholesalers, and 25% by processors.

Many of the Rural Haats in the state do not have basic market infrastructure facilities such as internal roads, drainage, electricity, water, auction hall / platform etc. and are located in congested areas. This results in poor service to the stakeholders including producers and offers substantial scope for improvement and modernization. Therefore it is becoming imperative to improve the functioning of these Rural Haats by providing necessary infrastructure, training the manpower connected with management of these Haats and making the management responsive to the users. It has been proposed to modernize and upgrade a total of 300 Rural Haats in Maharashtra through Rural Haat Modernization and Improvement Plan (RHMIP). The project has identified two categories of infrastructure requirement for modernization viz., Basic infrastructure and Productive infrastructure.

Basic infrastructurepromotes improved handling of commodities, improved hygiene and improved price dissemination and, in general, as a standalone infrastructure, it would be

non-revenue generating. For such kind of infrastructure, commercial loan is not available in the market. Illustrative basic infrastructures are (1) platform with shed, (2) Pathway, (3) toilets, (4) Electricity, (5) Water Supply (6) waste management (7) compound wall / boundary fence.

Productive Infrastructure isself-liquidating and on standalone basis, it generates revenue for the Rural Haat and enhances product value and sales through improved post harvest management. Illustrative productive infrastructures are (1) Godown (2) small cold store / cool rooms (3) Grading and packing house.

The rural haats selected by MACP for upliftment and the above changes are

Taluka	Rural Haat Selected
Buldhana	Chandol
Motala	Motala
Nandura	Chandurbiswa
Jalgaon jamod	Pimpalgaon Kale, Asalgaon
Khamgaon	Pimpalgaon Raja
Chikhli	Amdapur
Mehkar	Dongaon, janefal
Sindkhedraja	Sakhar kherda, Shendurjan, malkapur pan
DeulgaonRaja	DeulgaonMahi
Lonar	Sultanpur

Source: MACP

The list of the 53 major Rural Haats (total 350) with the major commodities traded is given in Annexure 1. The number of villages connected to Rural Haats varies from 12 to 30. Therefore the improvement plans need to be customized as per the demands in each Rural Haat and focus should be more on building infrastructural facilities to make the supply chain more efficient.

Milk collection centers

In the Buldhana district, milk is collected through 69 milk societies at three government milk centers. Dairy co-operatives are functioning presently at the village level. In this year, government milk scheme has collected 24.22 lakh litres of milk. Vidarbha Vikas Package program is implemented through Zillha Dudh Sangh by providing 50% subsidy on purchase of milk, and animal subsidy of Rs. 7000/- per animal. Shown below is the table of 12 major milk collection centres with the average daily production of milk in various talukas during flush and lean season.

Sr .No.	Milk Collection Centre (Place)	PVT. Or Co-Op.	Taluka	Average Daily Collection 2007-2011	
				Flush Season (Nov-Jan)	Lean Season (Mar-Aug)
1	Dhamna Milk Products	Pvt.	Buldhana	1100	950
2	Deulgaon Raja	Co-Op	Deulgaon Raja	1600	1100
3	Jijau Doodh Utpadak Sakhari Sanstha, Village – Nimkhed	Co-Op. (close)	Malkapur	50	20
4	Vadji Doodh Utpadak Sangha, Village – Vadji	Co-Op. (close)	Malkapur	70	50
5	Jivan Vikas Doodh Utpadak Sangha, Village – Harankhed	Co-Op. (close)	Malkapur	100	70
6	Jaimaldi Doodh Utpadak Sangha, Village – Marval	Co-Op. (close)	Malkapur	80	50
7	Sardar Vallabhai Patel Doodh Utpadak Sakhari Sanstha, Village – Dharangaon	Co-Op. (close)	Malkapur	70	50
8	Aland Doodh Utpadak Sangha, Village - Aland (Jalgoan Doodh Utpadak Sangh)	Co-Op.	Malkapur	100	50
9	Village – Vagul	Pvt.	Malkapur	100	50
10	Harankhed Doodh utpadak group, Village – Harankhed	Pvt.	Malkapur	100	70
11	Khadki Doodh Sankhalan, Village – Khadki	Pvt.	Malkapur	70	50
12	Utkarsh Foundation Pvt. Limited	Pvt.	Sindkheraja	1500	700

Source: District dairy development officer

The difference of milk collection between flush and lean season is as high as 800 liters for some talukas such as Sindkhed Raja. Following are some of the recommendations to improve the production of milk in Buldhana district:

- Harvest and use biomass of dried up crops (soybean, wheat, green gram, black gram, sorghum, bajra, maize, chick pea) material as fodder. Use unconventional and locally available cheap feed ingredients especially soya meal waste for feeding of livestock during drought. Harvest all the top fodder available (Subabul, Glyricidia, Prosopis etc) and feed the LS during drought. Concentrate ingredients such as Grains, brans & oilseed cakes, low grade grains etc. unfit for human consumption should be procured

from Govt. Promote Horse gram as contingent crop and harvest it at vegetative stage as fodder. All the hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS. Continuously supplement fodder with minerals to prevent infertility. Encourage mixing available kitchen waste with dry fodder while feeding to the milch animals.

- Keep close surveillance on disease outbreak. Undertake the vaccination depending on need. Keep the animal houses clean and spray disinfectants. Farmers should be advised to breed their milch animals during July-September so that the peak milk production does not coincide with mid-summer.
- During heat waves allow the animals early in the morning or late in the evening for grazing and feed them green fodder/silage/ concentrates during day time and roughages/ hay during night time. Put on the foggers / sprinklers and in severe cases, vitamin 'C' and electrolytes should be added in H2O. Apply/sprinkle lime powder in the animal shed during cold waves to neutralize ammonia accumulation.
- Encourage insurance of livestock through submission of insurance claim and availing insurance benefit during purchase of new productive animals

Livestock Markets

Live-stock occupies an important place in the agricultural economy of the district. The agronomy of the district is still dependent on the live-stock, which continues to be a valuable possession of the farmer. Every economically soundfarmer usually keeps a pair of bullocks, a few sheep, goats, cows and poultry. Bullocks and buffaloes are kept as draught or as breeding animals. Draught power required for agricultural operations such as ploughing, harrowing, drawing water for irrigation, transport, etc., is derived mainly from bullocks. Cows are a source of milk which is highly in demand. Live-stock also provides much of the organic manure used on the farms. Hence a pair of bullocks for draught and a cow or buffalo for milk and manure is to be commonly found with a large number of farmers.

There are 15 livestock markets in the district of which the biggest is in Khamgaon. These are most neglected markets in terms of infrastructure and marketing practices. They mostly have an open ground with some part as shaded area. Only a few APMCs care to have a water tank for the animals and their owners. Motala has just spent up to 51 lakhs for a shed and water tank and this is likely to be completed by 2012. Mehkar is an upcoming market in future.

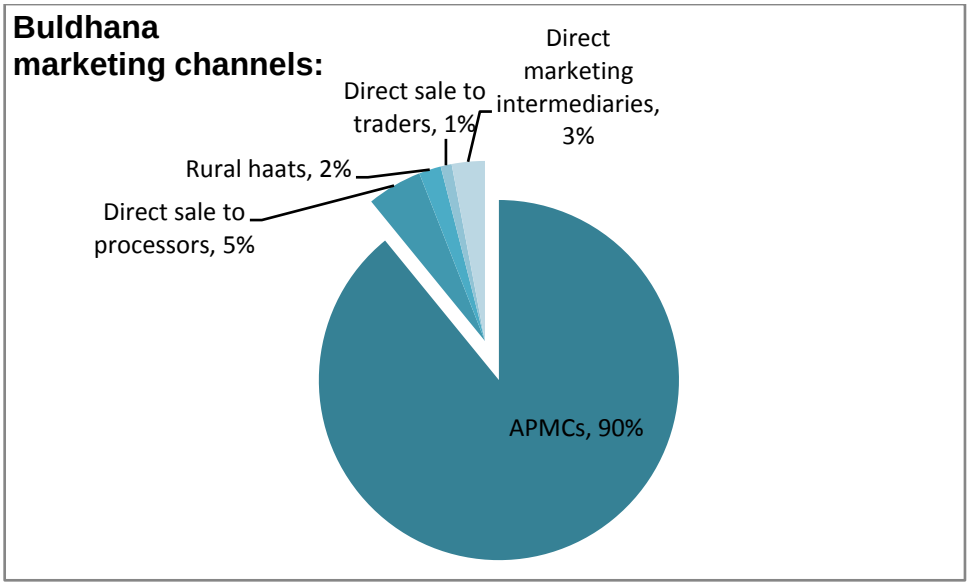
After Khamgaon, Sangrampur has the second largest livestock market. The livestock market mainly consists of cow, goat, buffalo, Bullock,Hen and Ox.

Sr. No.	Name of Livestock Market	Taluka	Major Types of Animals Marketed	Week Day of Market	Annual Market Fees Collected (Avg. From 2007-11) (in INR)	Managed by
1	Doodha	Buldhana	Bullock, Cow, Buffalo, Goat	Saturday	185000	APMC
2	Chikali	Chikali	Buffalo, Bull, She Goat	Monday	119948	APMC
3	Deulgaon Raja	Deulgaon Raja	Goat, Bokad, Cow, Buffalo, Hela	Saturday	170415	APMC
4	Asalgaon	Jalgaon	Bull, Cow, Ox, Oxen, Horse, Mare, Sheep, Goat	Tuesday	14366169	APMC
5	Khamgaon	Khamgaon	Goat, Sheep, Buffalo, Cow, Bullock etc.	Thursday	1192842	APMC
6	Lonar	Lonar	Bull, Cow, Buffalo, Goat, Male Goat	Monday	183970	APMC
7	Malkapur	Malkapur	Cow, Sheep, Buffalo, Goat, Bull	Saturday	170000	APMC
8	Dongaon	Mehkar	Bullock, Buffalo, Goat, Male Goat	Wednesday	128906.5	Gram Panchayat
9	Janephal			Saturday		APMC
10	Mehkar			Sunday		
11	Mohtala	Motala	Cow, Buffalo, Goat, Sheep, Bullocks, Horse	Thursday	138516	APMC
12	Nandura	Nandura	Goat, Sheep,Buffalo, Ox, Hen, Donkey	MONDAY	230310.4	APMC
13	Warwat Bakal	Sangrampur	Bullocks, Buffalo, Goat, He Goat, Others	Saturday	301357.88	APMC
14	Shegaon	Shegaon	Bullocks, Cow, Buffalo, Goat, Male goat, Sheep	Tuesday	133596	APMC
15	Malkapur	Sinkhedraja	Cow, Goat, Buffalo	Thursday	79374	APMC

Source: Original MSS Report, Vanamati

Market Channels by crop categories

Almost all of Buldhana's agricultural production is traded at APMCs (see chart below). Increasingly significant portion of cotton and pulses are being sold directly to processing units. Rural Haats form a minor marketing channel but can play a crucial role for vegetable farmers acting as markets of last resort.



Source: Based on primary research and validation of the MSS
**Above percentages give breakup of the total marketed surplus*

Out of the 13 APMCs in the district, 80% volumes (of all commodities combined) are concentrated in four APMCs – Khamgaon (34.5%), Lonar (24.6%), Deulgaon Raja (14.4%) and Mehkar (6.9%). Out of these Deulgaon Raja is predominantly a cotton market, with the crop accounting for 83% of total commodity arrivals in the APMC in 2013. Cotton trade in the district is also concentrated in Deulgaon Raja, with the APMC accounting for 95% of all APMC based cotton trade in the district. Meanwhile, the other three APMCs are more focussed on Soybean, with the crop accounting for 80% of all commodity volumes collectively traded in these three APMCs. At the same time, 80% of all soybean traded in the district (through APMCs) is also traded through the above three APMCs12. Like Soyabean, Pulses (Red Gram and Bengal Gram)trade is also concentrated in the above three APMCs. Although Pulses account for a relatively smaller portion of total volumes traded in the district.

Agriculture commodities marketed vis-a-vis production.

Details of Commodity wise average annual production, marketable surplus and average annual arrivals is given in the table below.The table below reveals that out of total marketable surplus of grains in the district almost 50% quantity is marketed in APMCs. In case of red gram and Udid, average annual arrivals are more than production, which means that red gram from adjacent district is brought in the district for marketing. The highest commodity produced and marketed in the district is cotton.

[12] Source: All APMC data in this paragraph is MSAMB data for 2013.

Sr. No.	Commodity	Av. Annual Production (Kgs)	Consumption	Marketable Surplus (Kgs)	Av. Annual Sell in APMCs within District (Kgs)	Av. Annual Sell in APMCs out of District (Kgs)
1	Maize	123,776,650	226,020	123,550,630	38,499,000	85,051,630
2	Jowar	108,023,567	6,408,712	101,614,854	53,353,842	64,399,600
3	Red Gram	46,988,333	427,730	46,560,603	53,616,300	- 7,055,697
4	Udid	25,608,033	7,209,325	18,398,708	21,364,300	-2,965,592
5	Soybean	294,962,167	6,053,292	288,908,875	85,655,880	203,252,995
6	Cotton	317,236,867	0	317,236,867	155,327,900	161,908,967
7	Wheat	108,063,883	4,353,546	103,710,337	27,796,180	75,914,157
8	Bengal Gram	76,998,850	6,553,254	70,445,596	25,353,440	45,092,156

Source: APMCs

After the analysis, we found that except Udid and Red Gram, all the crops are also sold at APMC's outside the Buldhana district. Bulk arrivals of Udid and Red Gram come from nearby districts to APMCs in Buldhana. For crops like bengal gram, wheat and soybean APMCs need to be better equipped to attract farmers to sell within the district. Also, for Moong and Udid a major chunk of the produce goes to the laborers. Automation in their production processes may prevent loss for farmers and increase marketable surplus.

Details of commodity wise existing grades and price variation is given in Annexure 2.There is significant variation in prices between grades which underlines the importance of grading of commodities.

The East India cotton association (EICA) maintains official standards for each of the commercially grown varieties as per the schedule during each season. The EIC maintains official standards of different staple length ranging from 20 to 42 mm[13]:

S.No.	Category	Length in (mm)
1	Short staple	19.5mm and below
2	Medium	20.0 to 21.5mm
3	Superior	22.0 24.0mm
4	Long staple	24.5 to 26.5mm
5	Superior	27.0 to 29.5mm

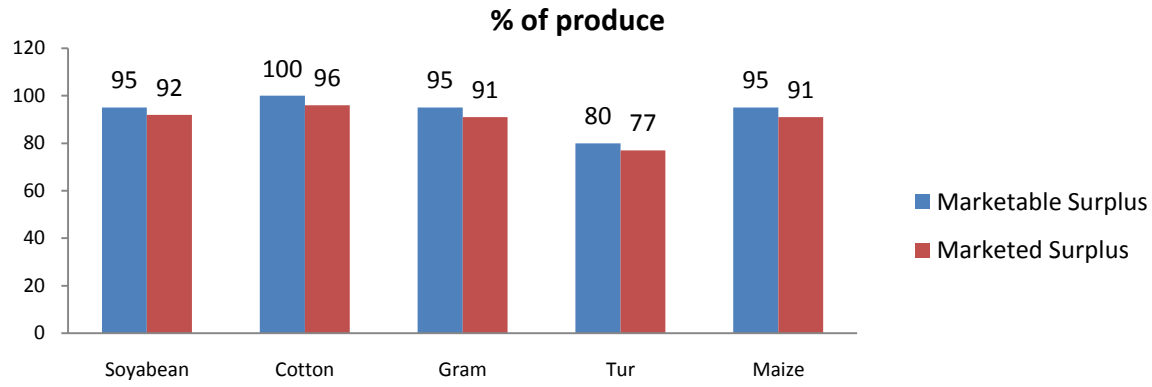
[13] Commodity profile submitted by Global-Agri

6	Extra long	30.0mm and above

For Soybean, the traders, who purchase Soybean, negotiate the price on the basis of its quality such as cleanliness, boldness, colour, moisture, shrinkage, admixture, etc.

In case of oranges, grading is limited to sorting out fruits based on physical characteristics like weight, size, colour, shape and degree of damage on fruits. This type of grading is done by hand in small operations. In pack house semi-automatic grading machines are used for handling large volume of the produce. The NRCC, Nagpur, has developed a machine for mechanical sorting, washing, waxing and sizing operations. Sometimes, hand-held rings called “Fruit Sizer” of different diameters are used to check the different size categories and help in packing of same size fruits in the one container.

Marketable and Marketed surplus



Source: Primary Survey

As per our interaction with farmers the following key observations were made regarding marketable surplus. The actual marketable surplus exhibits a strong variation at the farmer’s level to the extent of +-30% depending on various factors which have a positive or negative effect on the marketable surplus.

Factor	Effect on marketable surplus
The consumption of the product by the farmer and his family	-Ve
Market fluctuations/change in policies lead to higher surplus as farmers tend to offload the product quickly, but then the price realized is lesser	+Ve
Market price: higher the price more the marketable surplus	+Ve
Natural Calamaties (Hailstorms, drought etc)	-Ve
PHM losses in the product	-Ve
Malpractices by trader and theft	-Ve

Moreover it was also found that the method of market surplus estimation at the village level is very weak. Farmers do not keep a record of various losses and usage. Also it was said that they have never been asked to estimate their marketable surplus by any of the government departments.

Key reasons for difference in marketable surplus and marketed surplus were found as follows:

	Handling/ Packaging	Storage	Transportation	Malpractices/theft
Soybean	√√	√	√	√√
Cotton	√√	√	√√	√√
Gram	√	√	√	√
Red Gram	√	√√√	√	√
Maize	√	√√	√	√

Source: Primary Survey

Note:

√ Low level of losses,
√√ Medium level of losses
√√√ High level of losses

While the major cause for difference in marketable and marketed surplus is the PHM loss, the following observations were also made:

- Some farmers reported that product is lost in transportation which they are not sure why.
- Malpractices by trader in terms of how much reduction he will assume are also common and the farmer has little control over such practices.

Constraints in existing marketing system

An analysis of the strengths, weaknesses, opportunities and threats for all the 13APMCs in the district has been done.It helped realize the essential factors that APMCs can leverage on and those which it can improve on. Every APMC has a different need based on the requirements of the farmers, the arrivals, the sale, its connectivity by rail and road and the proximity of processing factories.

APMC	Strength	Weakness	Opportunities	Threats
Lonar	• High demand and better revenue prospects	• No information on market rates • Absence of crop grading system • No auction hall	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	
Chikhli	• High demand and better revenue prospects • Adequate Shaded Platform • Electronic display boards • Sufficient Storage Area • 2 soil testing facilities - Colour sortex facilities, kisan call centres	• Low Prices for Crops • Information on market rates rarely provided • Fewer traders • No Electronic Weights • Absence of crop grading system • No refreshment area for farmers • No auction hall	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	• Increasing Labour shortage • Excessive Irrigation Problem

APMC	Strength	Weakness	Opportunities	Threats
Malkapur	• High demand and better revenue prospects • Crops traded to other states • Good road connectivity • Sufficient traders • Higher prices compared to other APMCs • Processing plants nearby	• Information on market rates rarely provided • Absence of crop grading system • No auction hall	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information • Exclusive shed for chillies	• Increasing Labour shortage • Excessive Irrigation Problem
Deulgaon Raja	• High demand and better revenue prospects • Sufficient Storage Area • Good road connectivity • Sufficient traders	• Information on market rates rarely provided • Absence of crop grading system	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	
Mehkar	• Presence of huge cattle trading market	• Information on market rates rarely provided • Fewer Traders • No Electronic Weights • Absence of crop grading system • No auction hall	• Variety wise price declaration • More Processing plants • Cold Storage • Increase in farmer usage of RML pack in mobiles for instant information	

APMC	Strength	Weakness	Opportunities	Threats
Shegaon	• Good road connectivity	• Low Prices for Crops • Information on market rates rarely provided • Fewer Traders • Low trading volume of commodities • Absence of crop grading system • No auction hall • Inadequate Shaded Area	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	• Increasing Labour shortage • Excessive Irrigation Problem
Nandura	• High demand and better revenue prospects • Electronic display boards • Good road connectivity • Sound system for announcing rates, etc • NAFED procurement center for maize • Traders from all over India come here for sourcing Lemon &dry chilly	• Actual traders & commission agents working are much less than total number of licenses issued • No pro producer activities • No mechanism for recording sale proceed outside APMC premises • Low Prices for Crops • Information on market rates rarely provided • Fewer Traders • Very low trading volume of commodities • Poor storage facilities • Absence of crop grading system • No auction hall • Inadequate Shaded Area	• Construction of warehouses: dry& cold • Production of Lemon should be promoted • Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	• Actual traders & commission agents working are much less than total number of licenses issued • Increasing Labour shortage • Excessive Irrigation Problem • Better prices from nearby APMCs

APMC	Strength	Weakness	Opportunities	Threats
Buldhana	• Crops traded to other states • Big cattle market at subyard	• No pro producer activities • Information on market rates rarely provided • Fewer Number of Traders • Extremely poor roads • Very low trading volume of commodities • Absence of crop grading system • No auction hall	• Construction of warehouses • Increase use of ICT • Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	• Better prices from nearby APMCs
Sangrampur	• Physical infrastructure interms of internal roads, toilets, auction platform and parking • Rest house for farmers • Electronic display boards	• Information on market rates rarely provided • Extremely poor roads • Poor storage facilities • No Electronic Weights • Absence of crop grading system • No auction hall • Inadequate Shaded Area	• Cold Storage • Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	• Increasing Labour shortage • Excessive Irrigation Problem

APMC	Strength	Weakness	Opportunities	Threats
Motala	• High demand and better revenue prospects • Huge Market for Cattle trading	• Information on market rates rarely provided • Fewer Traders • Extremely poor roads • Very low trading volume of commodities • Poor storage facilities • No Banking service • Absence of crop grading system • No refreshment area for farmers • No auction hall	• Variety wise price declaration • More Processing plants • Increase in farmerusage of RML pack in mobiles for instant information	• Increasing Labour shortage • Excessive Irrigation Problem • Better prices from nearby APMCsprices
Sindkhed Raja	• Good Road connectivity	• Low Prices for Crops • Information on market rates rarely provided • Fewer Number of Traders • Absence of crop grading system • No auction hall	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	• Better prices from nearby APMCs

APMC	Strength	Weakness	Opportunities	Threats
Khamgaon	• Farmers from all over the district & nearby districts are coming • High demand and better revenue prospects • Good Road connectivity • Sufficient traders • Higher prices compared to other APMCs • Sufficient processing plants • Huge Market for Cattle trading	• No pro producer facilities • Information on market rates rarely provided • No Electronic Weights • Absence of crop grading system • No refreshment area for farmers • No auction hall	• Built more storage/ warehouse facilities • Promote WRs funding with own fund • Increase use of ICT • Develop own information (prices, arrivals) dissemination network • Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information	
Jalgaon Jamod	• More trading and farmers save 2.5% and as APMC does not have any commission agents	• Information on market rates rarely provided • No Electronic Weights • No Banking service • No Crop grading system • No auction hall	• Variety wise price declaration • More Processing plants • Increase in farmer usage of RML pack in mobiles for instant information • Cold Storage	• Increasing Labour shortage • Excessive Irrigation Problem

The SWOT analysis of APMCs has been used to identify issues and to develop strategies and activity plans.

Burning issues related to APMCs

S. No	Issue	Strategy	Activities
1	Lack of administration in the auction process	Farmer groups must sell together in order to get a strong hold against traders and get a better price	Formation of groups by Agriculture Department both crop wise and area wise.
2	Lack of infrastructural facilities	APMCs must develop infrastructure like shetkari bhavan, water supply, etc., for basic needs.	Use of funds from MACP, ATMA to build infrastructure
3	Delay in updated market rates by the APMC	The APMC needs to ensure market rates are updated in newspapers, SMS services, electric display boards and blackboards daily	The secretary should take responsibility to update the rates daily. The quality championmust review through surprise visits once in a month
4	No grading facilities	APMC should have an auction hall and provide exact specifications of quality of each grade to ensure transparency in sale	Appointment of a quality champion for providing specifications and giving demonstrations on grading
5	No Cleaning machines	Usage of heavy machinery to clean individual crops based on size and foreign matter	Use funds from MACP, ATMA, etc to buy uniform machines to be used by all traders for cleaning
6	Lack of knowledge of the various government schemes like Pledge loans	Educate the APMC officials with the schemes	Take monthly reports from the APMCs on the usage of schemes and how they could be improved for particular APMCs
7	Excessive dependence on labor and Commission agents	The process must be automated with conveyor belts/pallete system/forklift system and traders must deal directly with farmers to save handling charges	The APMC must facilitate installation of conveyor belts/pallete system/forklift system and farmers must be educated to deal with traders and sell their crops directly

All APMCs have been analyzed in terms of infrastructure and marketing practices and this analysis reveals that there is not enough storage facility in most of the APMCs, and there is plenty of scope for infrastructure development. As far as marketing practices are concerned open auction is followed in all APMCs for price realization. There is no facility for mechanized cleaning and grading of the of agriculture produce in any of the APMCs. Please see Annexure 3 for the overall constraint analysis of APMCs.

Annexure 3 gives us a detailed assessment on the APMCs in Buldhana district. Each APMC has been analysed in terms of infrastructure such as the presence and condition of roads, land, storage facilities, etc. Additionally, each of the APMCs has also been assessed on the basis of processes such as the use of display boards for displaying current market prices, the availability of cleaning units and other services/ facilities available. The assessment has been done using the Full Gap/ Partial Gap/ No Gap (F/P/N) analysis.

Furthermore, Annexure 4.2 gives us more details on the APMCs proposed plans and the sources of funds that will help implement these proposed plans. As per the Business Development Plans (BDPs) of each APMC, certain activities and works have been proposed. Details of these proposed works and recent developments are given in Annexure 4.2. The three primary sources of funds for implementing these activities are Maharashtra Agricultural Competitiveness project (MACP), Director of Marketing & Information (DMI), and Rastriya Krishi Vikas Yojna (RKVY).

Contract Farming and direct farmers to consumer market

There are more than 200 Agro based and other companies in Buldhana distri
Contract Farming. They are using different methods of Contract Farming.
some major companies which are actually doing business through Cont
Contract farming is done mostly for vegetables, cotton and soybean (for oil).

To be finalized post receiving information from MACP

Sr. No.	Name of Company	Specification
1	Nuziveedu Seeds Ltd. (NSL)	Cotton Seed Production
2	Anand Agro Pvt. Ltd.	Vegetable Seed Production in Shedding Net.
3	Mahabeej	Seed Production of all the crops
4	Ankur Seeds	Vegetable and Other seeds Productions
5	Seminies	Vegetable Seeds Production
6	Monsanto	Maize and Cotton Seed Production
7	Marico	Safflower Seed Production

Source: Primary survey

Direct Selling Companies

To be finalized post receiving information from MACP

Some Direct Selling Companies are also working in Buldhana district for soybean and maize procurement like ITC, RAWAL BROTHERS, RASOYA PROTEINS. Some other companies like Venkateshwara Hatcheries, JAPHA are procuring soybean and maize from traders.

There is one privatemarket in Buldhana District, DAND BROTHERS AGRO PRODUCT Ltd. Malkapur. No producer company is present in the Buldhana District.

Issues with private companies

(i) Grading becomes the major issue with private companies. The companies want a particular grade with fixed specifications of size, shape, colour, etc. It becomes a very laborious task for the farmer themselves to segregate their produce based on the company specifications and then send the rest of the material to the rural markets. Thus a separate collection center with the required machinery is required so that the company can take their produce and give back the rest to the farmer.

(ii) Company requires commodities in bulk quantities. Proper structural arrangement (Collection Centers) for bulk produce with government subsidies is required.

(iii) Farmers in Groups are needed for collective farming.Unless the farmers aggregate their produce, it becomes very difficult for anindividual farmer to promise a huge amount and deliver it. Thus Producer companies should exist.

(iv) Procurement of Material on Credit basis i.e. 7 days to 45 Days for Private Companies.

Agriculture Processing units in Buldhana

Type of Unit	Number of Units	Estimated Processing Capacity (MT p.a)
Dal Mills	24	56,000 MT
Cotton Gins	23	1,00,000 MT
Oil Mills (Soyabean, Sunflower, Sesame, Groundnut etc) + Cotton seed oil	7	36,000 MT
Banana Ripening Chambers	2	53 MT
Spices Processing	11	1,200 MT
Other Units	22	NA

Source: *Based on estimates provided by AME of Buldhana.*

Note 1: The processing capacity is an estimate. Wherever processing capacity of the unit was not provided, a conservative estimate has been taken. Estimates are as follows – (i) Cotton Ginning (data missing for 17 units) estimated as – 17 units * 2500 MT p.a – lower of the available unit wise capacity

data, (ii) Dal Mill (1 unit data missing) – estimated as 1 * 180 MT – assuming a 1 ton per day capacity; (iii) Spices Processing (6 unit data missing) – estimated as 6*100 MT. All other data is actual.
Note2: Others includes a wide variety of industries including wheat based bakery products, one cashew processing unit, three grape wine units, fruit processing, Potato and Banana chips, Tobacco, Papad (Black + Green Gram) and Sugarcane (one unit).

In Buldhana District, various Agri Processing Industries, Ginning Factories, Hospitals, Military Camps, Police Camps, Hostels, Caterers and other factories are working with Agricultural Resources. Some successful Agri Processing Companies like Rasoya Proteins, Daddy Chips, Shraddha Masale, Parle Biscuits etc. are dealing in crops like Soybean, Potato, Maize, Gram, Chilli, Turmeric. Some small entrepreneurs are dealing in Safed Musali, Citronella Oil, Ripening Chambers of Banana.

As far as storage facilities are concerned, there are 9 godowns of Wakhar Mahamandal in Buldhana, spread over different blocks. Traders are the main stakeholders who utilize these storage facilities. Noted below is the average storage period at the trader's level for the major emerging crops. For more details on capacity and facilities in these godowns, please refer to Annexure 4.

MSS Status Report								
Districts	**District wise Contract farming and direct licenses**	**Private Markets/ NCDEX/ MCX Status**	**Agro Processers**	**Ginning Factory**	**Producer Company /FCSC/FIG/CIG in District**	**Bulk Purchasers (Hospital, Catering, Hostel, SMEs, etc)**	**Flower culture farming, Production , Marketing facility etc.**	**Storage Facility**
Buldhana	NA	Private Market - 1 NCDEX - 3 MCX - NA	No. Agro Pro:- 7 , .	No of Ginning factory and textile industry- 238 numbers.	PC- NA FCSC - NA FIG & CIG - 1500	NA	NA	No. of storage facility available of APMC- 12767 MT/ MSWC- 17100 MT/ Cold Storages- 6

Source: DMO, DIC, MSAMB, etc.

Average Storage period by traders

Crop	**# of days**
Cotton	0-2 days
Soyabean	5-6 days for small traders who then sell it to big traders. 1-2 months for medium traders. Few very big traders sometimes even procure for 4-6 months
Orange	0-1 days as its directly sent to consumption center
Red Gram	25-30 days mostly. Some large traders can hold for 4 months
Bengal gram	25-30 days mostly. Some large traders can hold for 4 months

Source: Primary Survey

Soyabean

1) Traders keep aggregating Soyabean for 8-10 days and then send to buyers at various locations as per orders.
2) Few traders store soyabean for longer periods (upto 6 months).
3) Sometimes, big traders store soyabean (overall small percent as compared to the total soyabean arrivals in Buldhana) for periods larger than 4 months.

Cotton:

1) Most of the Farmers take their produce directly to ginning & pressing mills and not to the APMCs.

2) Village aggregators / small traders procure from farmers in villages in small quantities, and keep the cotton for 1-2 days till they procure a truck load/Vehicle load of cotton and then send it to the ginning/pressing mill.

3) Traders trading in cotton bales, store bales for longer period (upto 5-6 months) and sell as per the market demands

Bengal Gram:

1) Gram arrivals start in January, February & ends completely by August.

2) Traders keep aggregating Bengal Gram for 25-30 days and then sell to buyers at various locations as per orders.

3) Some traders store Bengal gram for longer periods (upto 4 months).

4) Few traders (very large traders) even store gram for more than 1 year and take the produce to the market when fresh gram arrival stops completely.

Red Gram:

1) Traders keep aggregating Red Gram for 25-30 days and then sell to buyers at various locations as per orders.

2) Very few traders (big traders) store Red gram for longer periods (upto 4 months).

3) Most of the pulses processors run their plants only for 6 months.

Maize:

1) Kharif maize arrivals in Buldhana market starts in November & December. At the same time many rakes are dispatched from Buldhana to various consumption centers.

2) Traders procure, aggregate and supply to big traders.

3) Storage period is limited to 8-10 days which is the aggregation time.

4) Rabi maize arrivals starts in the month of February, and traders keep stocks of maize as per markets trends and speculation.

Peak Arrival period for key crops

Crops	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Soybean							**P**	**P**				
Cotton						**P**	**P**	**P**				
Red gram								**P**	**P**			
Bengal Gram									**P**	**P**		
Maize (Kharif)							**P**					
Maize (Rabi)									**P**			

Source: Primary Survey

	Harvesting Period
	Sowing Period
P	Peak Arrival Period

Red gram has varieties with maturity period ranging from 100-150 days, 150-180 days & 180-300 days

Potential of grain storage of the district

To be finalized post receiving information from MACP

Transportation facilities related to agriculture goods

Primarily motor transport is utilized for activities related to agriculture goods to transport produce within the district and outside the district. Farm transportation activities include the use of motorized equipment to deliver the final produce to the local Mandi or the APMC market. This needs proper transportation facility to maintain the quality of the produce as well as the time lines, so that the produce can reach its final destination within time and the farmers can get the benefit of good rates. All stakeholders from farmers to traders were satisfied with the transport infrastructure.

Normally there are two types of transports. 1) Primary transport and 2) Secondary transport. In primary transport, farmers use their own sources such as tractors, small trucks, bullock cart, private trucks to deliver the product to the local mandi or APMC market. In secondary transport, the traders who are dealing in bulk quantities, prefer to take a bigger vehicle to deliver the stock to the final buyers or companies. Transportation activities should be timed to occur as much as possible during regular working hours.

It is observed that after drying and cleaning of the produce it is packed in gunny bags, plastic bags, crates. For pulses and cereals, they are usually packed in gunny bags. Vehicle is used as per the volume of the produce and the place where it is to be delivered.

In some of the produce like Horticultural crops- Banana, they are not sent to the local APMC markets, instead they have been delivered to the local market in small or required quantities or to other bigger potential markets in the same district or may be in another state. This requires proper logistic facility to deliver stocks. In these crops, harvesting takes place in the evening time to maintain the freshness and quality of the produce and after packing, it is immediately loaded in the vehicle for the delivery.

Farmers / Traders using public roadways must comply with existing legislation, regulation the required documents such as bill or invoice copy, Direct marketing licenses if they have, or the proper information of the delivery.

In some cases farmers / traders face certain issues while delivering stock within district or to other state. Some of these issues faced by them are:

- Proper transport facility is not available.
- Road infrastructure is not proper, rough and damaged roads, traffic problems leads to delay in reaching the final destination.
- Statewise different taxation policy on one crop.
- Higher transit damage during the transportation.
- Heat Accumulation or very poor ventilation within the transport vehicle.

Private Markets versus Regulated Markets

The Private Markets have miniscule presence and operations as compared to regulated markets as is also seen in most parts of the state. The Pr vided no particular advantage to the farmers or the traders as com etting up these markets. The existing regulated markets enjoy a str ntrol over their catchment zone and are able to compete with Private m having poorer infrastructure and facilities.

To be finalized post receiving information from MACP

As a result, to conclude, ithas been observed that the existing infrastructure in the 13 regulated markets is not sufficient to handle the agriculture produce and this is true in case of the livestock market and dairy sector as well. The unregulated rural haats are unorganized and have little capacities to handle the agricultural produce. There are insufficient infrastructure facilities like warehouse, cold storages, etc.and incompetent marketing practices in the existing system for example lack of electronic weighing machines, etc.

Maharashtra Agricultural Competitiveness project (MACP) has recently undertaken an exercise (Project Concept Note–PCN) to assess the existing infrastructure and other facilities in each APMC .This was an effort for selection of APMCs for inclusion in MACP. Please refer to Annexure 4.1, 4.2, 4.3, 4.4 and 4.5 for proposed development works on APMCs, infrastructure, dairy, rural haats and other markets. There have also been some other market developments by MACP recently

1) Farmer Common Service Center (FCSC) through MACP. These FCSCs will basically act as product aggregation and value addition centers for the small and marginal farmers.
2) PPP-IAD Project: Public Private Partnership – Integrated Agriculture Development. 10 lakh farmers from all over Maharashtra are being directly linked to the corporate sector. This is a project to be completed from 2012-17. It will concentrate on corn, Soybean, potato, tomato, cotton and grapes. District with specialty crops are chosen for the project.

Recently efforts have also been made to establish alternative markets in the district. Some of those initiatives are as follows:

1) Contract Farming-SiddhivinayakAgri Processing Pvt. Ltd, Rajguru Nagar, Taluka: Khed, District: Pune. This is a private company seeking large amount of potato production through contract farming. It will provide the farmers with seeds and collect large amounts of produce from various farmers. It will then sell this to larger corporate like Marico, Pepsico, Parle, Balaji, Haldirametc..
2) Jain Irrigation, Jalgaon deals in White Onion.
3) Nujiveedu Seeds dealing in Contract Farming, Seed Production program.
4) Many more such companies must open up in order to increase productivity, utilize existing resources to the fullest and provide the farmers with a good price for their crops and also protect them from varying weather conditions, market prices and other unforeseen conditions. Large no of Companies are operating in Seed production of various crops in some Talukas of Buldhana. For Example

MAHABEEJ, Anant Agro, Nujeeveedu Seeds, Ankur Seeds, Ajeet Seeds, Monsanto, Nirmal Seeds etc.

5) Initiate National Commodity Exchange ltd (NCDEX) - Brokers operating from APMCs to increase the number of traders and get better prices for the crops.

Today the farmers have only one option of selling their produce in APMC. Various alternative marketing channels like produce aggregation through FCSCs warehouse receipt scheme and others to facilitate marketing with linkage to spot exchanges and banks can be proposed. This will create alternative market channels for the farmer who will have a choice to sell his produce where terms would be available. To expand alternative marketing channels, e-marketing platforms/virtual marketing can be initiated.

Constraints in Market led Production

Strategic Research and Extension Plan of district gives analysis of gaps in technology adoption in production practices of major crops and allied enterprises in agriculture. However this does not include post-harvest practices to improve quality of produce so as to add value to product for better price realization. Market led production is a way of backward planning of production and includes such pre and post-harvest practices which improves the quality of produce for higher returns in the market. From this perspective of analyzing constraints in market led production following major crops &enterprises are considered.

Crops

1. Soybean
2. Cotton
3. Bengal Gram
4. Red Gram
5. Maize

It is seen that while organization of farmers into groups as well as product aggregation are increasingly adopted strategies across these crops in Buldhana, post harvest technology use and primary processing still need to gain a momentum as far as implementation is concerned in the district. Additionally, there is increasing participation of soybean and bengal gram in commodity exchanges like NCDEX and forward markets. Also, the pledge loan availability to farmers growing cotton is increasing. That said, focusing on sound

implementation of post harvest technology in the district will definitely bring a positive change in the production of these crops thereby building the confidence levels of the farmers

Structured questionnaires were prepared to collect the data for identifying constraints in aforesaid crops and enterprises .The data is collected from 15 representative farmers from catchment area of component B of the project and most answered response is considered as conclusive answer for writing in the following charts. Crop wise constraint analysis is given in the Annexure 7.

Key insights from constraint analysis

Key insights from the constraints analysis for soybean are:

- Farmers need to organize in producer groups to increase their bargaining power
- As far as they can farmers should plant varieties like JS-335, JS-9305, Samruddhi, and Phule Kalyani (DS-228), which fetch better prices. Seed availability is not a constraint[14].
- Better storage facilities where grain is stored at room temperature are required; especially to ensure that grade-wise prescribed moisture levels given in Annexure 4 and 8C are not exceeded.
- Produce should be packaged in jute gunny bags starting from 50 Kg bags and for retail where possible.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- There is scope to increase contract farming in the form of public-private partnerships in soy solvent plants.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales.

Key insights from the constraints analysis for cotton are:

- Farmers need to organize in producer groups and also use commodity exchanges more.
- Picking must be done in the morning and evening and staples need to be free of foreign matter

[14] Primary survey

- Farmers should plant varieties like Ajit 111 and Ajit 155, Doctor, and Kaveri. which fetch better prices. Ajit 111 fetches the highest price in Akola and has the highest arrivals. Seed availability is not a constraint[15].
- Famers need more dry, rodent free and fire safe storage facilities
- To increase marketability of the crop grading and packaging guidelines must be followed
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales
- There is scope to increase contract farming in the form of public-private partnerships.

Key insights from the constraints analysis for Bengal Gram are:

- Farmers need to organize in producer groups to increase their bargaining power and also use commodity exchanges more.
- Hybrid varieties such as Vijay, Digvijay, Gowrang, Mix, Jaaki 9218, PKV Kabuli 2, PKV Kabuli 4-1 should be encouraged. Seed availability is not a problem for farmers for these varieties[16].
- Produce should be packaged Polythene Impregnated jute bags, Cloth bags etc use for transportation. Better storage facilities where grain is stored at room temperature are required; especially to ensure that grade-wise prescribed moisture levels given in Annexure 4 and 8C are not exceeded.
- Farmers should invest in creating value added products.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales.
- There is scope to increase contract farming in the form of public-private partnerships.

Key insights from the constraints analysis for Red Gram are:

[15] Primary survey
[16] Primary survey

- Farmers need to organize in producer groups and also use commodity exchanges more
- Crop varieties such as TARA, BDN, BSMR736, BSMR836, BSMR 853 need to be encouraged in the district. Also, Asha, Nirmal, Maruti and Ganesh are popular varities in the district with Maruti fetching high prices.
- Emphasis need to be put on propoer grading activities along with proper storage so as to avoid pest infestation.
- Red gram should be packed in gunny bags to allow for proper handling process.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales.
- There is scope to increase contract farming in the form of public-private partnerships.

Key insights from the constraints analysis for Maize are:

- Farmers need to organize in producer groups and also use commodity exchanges more
- Crop varieties such as Pinnacle, Kargil, 900M, Madhumakka, White Makka need to be encouraged in the district.
- Emphasis needs to be put on proper grading activities along with proper storage so as to avoid pest infestation.
- Maize should be packed in polythene impregnated jute bags and/or gunny bags to allow for proper handling process.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales.
- There is scope to increase contract farming in the form of public-private partnerships.

Details of the constraint analysis are given in Annexure 7 with a Full (F), Partial (P) and No (N) gap analysis.

Recommendations

The MSS report outlines the existing marketing systems and channels in Buldhana district along with detailed information on the main crops of the district. This information helps us understand the current activities and developments in Buldhana and enables us to identify potential business opportunities that farmer groups can establish in the district. This MSS report also helps us to propose specific activities that ATMA may undertake to promote production and productivity of crops as well as encourage business activity amongst farmer groups.

In Buldhana district, there is an overall trend of a gradual shift from cotton to soybean. On the basis of existing as well as expanding area and changing crop trends, TechnoServe has selected the soybean, cotton, bengal gram, red gram and maize as the emerging major crops in the district. In the last 5-8 years, there has been a shift in cultivation from cotton to soybean and red gram. Farmers have realized that the risks associated with cotton are much higher as compared to soybean, since cotton is more susceptible to pest attacks and has high cultivation costs and requires manpower. Red gram is often used as an intercrop with soybean. In Rabi season, bengal gram is the most preferred crop. The combination of soybean (Kharif) and bengal gram (Rabi) gives higher revenue as opposed to growing a single crop of cotton.

Major gaps

For production in the district to be market led, improvement in productivity along with improvement in quality for better value produce is needed. Strategies have to be framed which will be supported by interventions/ activities to achieve set targets. Interventions proposed will act as cafeteria for preparation of extension projects for addressing the identified issues of particular crops. Some key issues that need to be immediately addressed are as follows.

Poor industrial sector: Despite the presence of significant cotton and soybean crop, the processing industry remains weak. In its latest Industrial Policy, the Industry Department of the Maharashtra State Government graded Buldhana as D+, the second lowest rating of industry[17]. Additionally, industrial infrastructure in the district is also very poor especially concerning power availability for processing and production. Processing in the district is centred on dal mills with some ginning and soybean processing activity as well. However, the processing capacity seems insufficient, as a bulk of the produce, after it is traded in the APMCs, travels out of the district for processing.

[17] Industry Department

Lack of monitoring & follow up activities: Extension activities are largely carried out by Krishi Vigyan Kendra (KVK), ATMA and the local agriculture department. There are no major agriculture colleges or research institutions in the district. A common complaint among farmers is that delivery of extensions services is inconsistent and lacks follow-up. From the primary interviews conducted amongst farmers, only 52% said they had received information through SMS and an even small percentage-11% said they received extension support and help from Kisan Call Centres.

Insufficient irrigation support: Overall, access to irrigation is weak. Only around 6% of gross cropped area is irrigated and farmers are largely rain-dependent18. Of the total irrigated area, around 59% is irrigated through surface irrigation with the rest 41% being through ground water. Irrigation facilities need to be provided and the encouragement of watershed structures needs to be propagated.

Lack of market awareness: Even after constant efforts from ATMA, and other government institutions, farmers still lack awareness of upcoming market trends. Farmers should be made more aware about sources of market information and intelligence. This can be done through the following series of activities - Group formations, pledge loans, farmer trainings and exposure visits within the state and outside. Our interviews with farmers revealed that input dealers were the most popular sources of information. As high as 85% of the farmers said they received most of their information from input dealers while only 37% said they received from a KVK scientist.

Weak market and post-harvest infrastructure: Market and post-harvest structure is inadequate in the district. Although most farmers seem to be satisfied the current availability of storage facilities and other infrastructure, this is primarily due to the fact that very few farmers actually use these facilities. As a result, a lot of the produce moves across the border to Madhya Pradesh that offers better infrastructure. Additionally, grade assessment in markets is ad-hoc (manual grade assessment) and other facilities such as market information systems are underdeveloped. This leads to high uncertainty in the pricing system along with making it difficult to determine the actual parameters that drive the rates in the market. This inhibits the ability of farmers to participate beyond crop production since market and post harvest infrastructure is either completely absent or unreliable. Only 4% of the farmers interviewed always used the storages and warehouse facilities available in the district.

[18] District Socio-Economic Survey. Note: latest data available is from 2002-03. Irrigated area has increased over the last 10 years but still remains low. In the absence of any new data, we are using this figure.

Road Map

There is tremendous untapped potential for establishing units for poultry feed, organic soya etc. However, infrastructure related weaknesses may inhibit growth. The strategy for development of agri-business in Buldhana needs to focus on the following imperatives: (i) Promote greater productivity in major crops (ii) Diversify crop portfolio by promoting high value crops (iii) Capitalize on existing progressive farmers to promote producer-owned initiatives that can support the district's existing and planned cropping portfolio and (iv) Invest in large scale awareness creation on optimum use of existing infrastructure that can help improve incomes. Some of the urgent gaps identified in the district are:

Focus Area	Specific Action Points	Activities	Responsibility	Time Frame & Cost
URGENT GAPS				
Augment Storage Infrastructure and Promote warehouses amongst farmers.	<u>Ensure Adequate Capacity</u> 1) Ensure adequate storage capacities at each APMCs considering a 10 year expectation. 2) Focus on setting up warehouses at secondary market levels as well as at key villages. 3) Experiment with a combination of brick & mortal warehouses as well as hermetic storage structures to ensure expansion in capacity within short period of time. <u>Promote Usage by Farmers</u> 1) Explore options of farmers tying up with traders/processors to stock on their behalf using an accredited warehouse and against a buy back guarantee from the trader/processor. Such a tri-party arrangement will help the processor not require to maintain stock and take benefit of lower storage costs of farmers; the farmer to take benefit of price rise in non-peak seasons; while assure farmer of a market due	Improve basic & productive infrastructure in APMC's and Rural Haats PHT Demonstration Pledge Loan Farmer Trainings	PD ATMA, in collaboration with 1) MSAMB for augmenting APMC infrastructure and conducting trader level survey. 2) With Agri-department to promote concept amongst farmers.	Annexure 3: Constraint analysis of Existing market analysis(APMC in District) Annexure 4.2: Proposed works and Recent developments Annexure 5: Cropwise issues and proposed strategies with units cost estimation Annexure 6: Time frame for implementation of market led production Annexure 7: Cropwise constraint analysis for

	to a buy-back guarantee. 2) Explore option of using trained agri-service providers working on commission basis to promote warehouse services amongst farmers. Such service providers could work on a commission basis and help farmers plan their business by using a warehouse, help them with documentation.			market led production
Transparent & Fair Grade Assessment Mechanism	<u>Equip APMCs and Keep Stock</u> 1) Take stock of grade assessment equipment at APMCs including grading tables, moisture meters, staple length scale (for cotton etc). 2) Equip all APMCs with proper grade assessment equipment as per stock taking. 3) Ensure stock of all equipment is monthly submitted by APMC Secretaries to the DMM-MSAMB to ensure APMCs are ensuring they are updated	Improve basic & productive infrastructure in APMC's and Rural Haats	DMM-MSAMB	Annexure 3: Constraint analysis of Existing market analysis(APMC in District) Annexure 4.2: Proposed works and Recent developments
	<u>Create Awareness</u> 1) Adopt a systematic campaign program to promote equipment based grade assessment including multiple media such as (i) wall paintings, (ii) local cable ads, (iii) news-papers, (iv) radio spots etc. 2) Each APMC to submit proposal with specific targets for adopting promotion activity and target to reach out to farmers. 3) Make it mandatory for all trades within the APMC to be done using equipment based grade assessment and provide farmer with a grade slip that gives complete details of produce graded. Conduct monthly farmer surveys during the peak marketing season – using a private agency – to gauge level of awareness of farmers about transparent grading systems.	PHT Demonstration Farmer Trainings Farmer Field School Exposure visits • Within state • Outside state	DMM- MSAMB	Annexure 5: Cropwise issues and proposed strategies with units cost estimation Annexure 6: Time frame for implementation of market led production Annexure 7: Cropwise constraint analysis for market led production

Promote farmer owned small scale businesses that capitalize on the low hanging fruits	Businesses such as Soya Milk and Flour Processing, Maize based Poultry Feed Production address a critical shortfall in processing industry in the district. Similarly opportunities exist in custom hiring of farm machinery, particularly tractors and mounted implements. Seed processing is another opportunity which already exists and can be further developed. If promoted at a producer association level on a large scale, they can provide a fillip to the existing food processing industry.	Group Formation Farmer Collective Service Centres PHT Demonstration Farmers Training Exposure visits • Within state • Outside state	PD ATMA	Annexure 5: Cropwise issues and proposed strategies with units cost estimation Annexure 6: Time frame for implementation of market led production Annexure 7: Cropwise constraint analysis for market led production

A comprehensive action plan for the time period of 2012-2017 was developed by the team in VANAMATI detailing the specific approaches required to be taken for crops. The team has classified the action plan in terms of activities to be undertaken specific to: Crop demonstration; PHT demonstration; Group formation; FCSC (grains); Pledge loans; Farmers training; Farm school and Exposure visits (within state/ outside state). All these activities have been proposed to solve for issues related to non adoption of package of practices and post harvest practices along with the lack of market awareness. Additionally, the total costs of implementing the action plan has been laid out after considering the availability of funds from major institutions such as MACP, ATMA, MSWHC, NABARD, ISOPAM, NHM and MWSIP. While most of the prescribed activities in the action plan may already be under implementation, a reference to this action plan will further help in creating a strategic approach to the development of the district. Please refer to Annexure 5, 6 and 7 for details on strategies and activities.

Potential Businesses

We found it useful to further understand the business environment in Buldhana and identify potential business opportunities in the district. Based on the data produced in the report and our assessment of the needs and gaps of the district, we suggest potential areas for intervention across key crops identified. There is significant potential for FCSC based business activities by the soybean, cotton and vegetable farmers. Following are three potential business models that could be adopted by farmer groups/FPOs in the district. While recommending these business models, the potential for value addition through processing at different levels to increase efficiency, preserve quality and/or reduce wastage/spoilage has been taken into account and assessed on the basis of a matrix designed by the TechnoServe team.

Sr. No.	Business model/opportunity	Focus crop(s)	Key considerations
1.	Small scale spinning mill (Microspin)	Cotton	• Significant cotton production in the district • High impact value addition with farmers potentially receiving 50% higher value for processed cotton • Relatively low capital investment: machine costs ~Rs.60 lakhs compared to Rs 50 crore for a traditional spinning mill • Operations of machine is straightforward; farmers typically require 1-2 months training
2	Soymilk processing unit	Soyabean	• Significant and increasing production of soyabean in the district • Low capital investment of Rs 15 lakh • Demand for niche high margin products like soymilk is increasing • Easy to operate machine and not labour intensive
3	Vegetable hybrid seeds production	Vegetables	• Minimal land requirement (0.5 acre will suffice) and capital investment (shade net costs Rs 60,000) • No specific soil conditions or weather conditions necessary: seeds can be grown anywhere • High margin of 50% with fairly stable returns • Strong demand from seed companies like Syngenta, Mahyco and Ajeet Seeds. An established case study in Pangari village of Buldhana Taluka may help attract more companies.

Review of ATMA

In order to ensure adoption of best practices in crop cultivation and encourage the establishment of businesses in Buldhana, ATMA will need to create specific and structured extension programmes and interventions using the above information and recommendations. Historically, the efforts of ATMA Buldhana have been more on promoting

production led agriculture extension services in the district. With the convergence of NHM/MACP and larger drive to focus more on market led extension, ATMA, Buldhana has been proactively gearing towards the same. The district has seen some notable market led extension services by ATMA (example – contract farming on baby corn and potato, supporting farmer interest groups on dal mill and spiral separator etc.). However, a scoring assessment of ATMA conducted by the TechnoServe team on key parameters reveals that ATMA Buldhana will have to significantly improve in almost all parameters; more so specifically in working with line departments and convergence of schemes and have better planning and implementation of its planned activities as outlined in DAAP.

While, efforts to build capacities of its staff on the concept of market led extension services have been initiated, the pace and the scale of the training need to be increased. Out of 19 trainings on various themes provided to the ATMA staff, only one training was specifically on the processing of cereals, fruits and vegetables. Such trainings need to be designed and delivered more often to all the ground level staff viz. BTMs, SMS and Deputy Project Directors. Furthermore, for encouraging the establishment of businesses ATMA Buldhana will need to encourage production and cultivation of crops and help farmers realize a better price for their produce. ATMA will need to play a critical role in helping establish infrastructure and policy. Amongst other important undertakings, capacity building of ATMA staff through modular structured training programs particularly on specific skills such as monitoring and evaluation, market led extension, value addition and processing, and formation and strengthening of FPOs will further improve the impact and execution of activities. Recruitment of key staff members in ATMA along with creating an annual plan on detailed tasks and key result areas for staff members will be helpful in streamlining processes and implementing activities. Finally, regularly monitoring work at ATMA and documenting the processes and progress in quarterly and annual reports will help ATMA create impact through its activities and course correct their implementation strategies required so as to create the most impact.

A broad action plan for ATMA is noted below:

Action Areas	Description	When
A. Strategy		
i) Articulation of key focus areas based on gap assessment	• Identify key gaps through following: ○ Review of SREP, MSS and this study ○ Sample need assessment exercise through PRA and other tools • Articulate focus areas based on the above	Yearly once before Annual Action Plan preparation (January-February)
ii) Strategic cum planning workshop with AMC on key	• Discuss focus areas with AMC members • Build consensus and develop broad initiatives that can be promoted	Yearly once before Annual Action Plan preparation

focus areas	• Communicate the focus areas and broad initiatives to BTTs	(January-February)
iii) Focus on market led extension on the identified priority and emerging crops	• Key crops identified are: Cotton, Soybean, Maize, Red gram • Cotton – some of the initiatives that can be taken up by ATMA, Buldhana are: o Provide information on prices of cotton in different markets through *sms* based system, farmer friends, publishing in local newspapers o Establishing market intelligence systems and price forecasting at *taluka* level. Dissemination through sms based system and local newspapers and newsletters such as *Agroone* o Facilitate exposure of FIG groups to *Microspin*. Interested FIGs to be trained and handhold to set up *Microspin* spinning facility o Farmer Friend, • Soybean - In soybean, initiatives that can be promoted are: o Farmers to be linked with warehouses and avail the facility of WHR. The farmers need to be guided by ATMA staff to avail the facility and develop linkage with warehouses in their closer proximity o ATMA Buldhana, to disseminate information related to prices to farmers through farmer friends and sms based system o Exposure and linkage with soybean processing can also be facilitated by ATMA. Similarly, small soy flour processing, spiral separator for seed production and soy milk processing can be piloted through providing handholding support to FIGs • Maize – o Organising exposure and training especially related to different grades of Maize o Exposure to different feed companies, o Promotion of contract farming and training of agripreneurs/FIGs on feed production and setting up farmer led feed manufacturing enterprises and collection centres	
iv) Focus on strengthening of Farmer Interest Groups and Producer Companies	• Identification of the gap areas as reflected in the grading exercise • Prepare customised plan for each of the FIGs under different grades for strengthening • Allocate man power to handhold FIGs on a regular basis • Initiate activities (preferably economic) to encourage FIGs to actively involve	Immediate; Planning and activities to be reviewed every month
B. Structure		
v) Develop selection criteria for non-official members through pre-set criteria	• The farmers need to be selected through a set of criteria • AMC to develop a set of criteria and the same can be approved by GB • Following are the suggestive criteria: o Farmer having diversified farming system o Farmer currently engaged in agriculture and is located in the village/place of farming o Demonstrated use of new technology having	Immediate

	good relationship with research institutions or agencies in the business of promoting agriculture ○ No current or past engagement/relationship with political parties; or have hold any positions at district or Taluka level ○ Literate and have ability to read and write (Higher education is preferable but not essential)	
vi) Functioning of GB and AMC through orientation and regular meetings	• Orientation of members on their roles and responsibilities • Quarterly meetings for GB • Monthly meetings for AMC • Ensure attendance and participation of members through involving members in the regular work of ATMA	Immediate
vii) Involve BFAC, DFAC and AMC members in regular monitoring of ATMAs work	• Orient the BFAC, DFAC and AMC members on their roles and responsibilities • Create plan for the members to undertake monitoring function on monthly basis • Include specific agenda to discuss the feedback from the BFAC, DFAC and AMC members post their visits in their monthly meetings	
C. Staff		
viii) Building skills of ATMA staff through modular structured training programs	Following are the suggested trainings for ○ Project Director – Project Formulation and Management, Market led Extension, Monitoring and Evaluation, Networking, Negotiations ○ Deputy Project Director (Marketing) – Market Led Extension, PHM, Value Addition and processing ○ Deputy Project Director (Research): Research methodology, farm schools, demonstrations, trainings, crop based trainings on new technology ○ BTM – Concepts of Market led Extension, Post-Harvest Management in the key crops, Value addition and Processing ○ SMS – Formation, strengthening of FIGs, CIGs, FPOs ○ Farmer Friend – Group Dynamics, Formation and strengthening of FPOs	Yearly, spread evenly across the year
ix) Recruitment of key staff	Following vacancies need to be filled up: • Project Director – 1 • SMS – 13; preference for candidates having skills and experience on marketing of agro-produce, and specific domain knowledge	Immediate
x) Annual Planning for key staff and articulation of Key Result Areas (KRAs)	• Each ATMA staff to outline and articulate their Key Result Areas (KRAs) • Goals to be based tightly on the key identified priority areas and annual action plan • BTMs and SMS to spend minimum of 50% of their time in field working with farmers and FIGs • A fortnightly work plan to be made at the outset of the month and verified/approved by TAO and DPD	• Annual (post finalisation of Annual Work plan) • Every month
D. System		

xi) Improve Annual Action Planning process by detailing the key activities at the block and District level and getting advisory support from Farmers Advisory Committee and BTT members	• Communicate the key focus and intervention areas to BTT/BTM as planned by the AMC • Use detailed template to support the BAP/DAP template • Develop a roster of activities and advertise the Block and District level activities through websites, sms, print media and putting the same at common places • Maintain a transparent and stricter guidelines for selection of beneficiary • Review of the plans versus achievement to be undertaken monthly at the Block level at BTT/BFAC meetings	• Annual while preparation of Annual Action Plan • Monthly
xii) Documentation of ATMAs work through a quarterly and annual report.	• ATMA to produce a two to three page report (both physical and financial) on the activities undertaken in the blocks • These quarterly reports to be translated in as Annual report	Quarterly and compilation to be done by the end of every year
xiii) Annual evaluation by involving experts	• ATMA to undertake annual evaluation of its work through hiring professional consultants at the District level	Annual

In addition to ATMA, the Agriculture Marketing Experts ('AME') of the districts along with other officials will play a critical role in identifying and implementing the district plan so as to encourage business activity. The district AMEs will need to develop a plan to encourage contract farming, direct selling and processing industries. It would be of utmost importance for the AMEs to identify the key buyers/ consumers in the district in terms of large institutions and organizations such as hospitals, military camps, police camps, colleges and others. These organizations will be important buyers of locally processed commodities and locally cultivated fruits and vegetables. Furthermore, the AMEs must identify the potential industries for the main crops of the district and the market requirement and demand from companies and processors. This will enable a detailed approach to encouraging business activity in the district and thus ensuring farmers receive a better price for their crops.

Annexures

Annexure 1: List of Rural Haats in Buldhana

Sr. No.	Name of taluka	Name of Rural Haat	Week Day of Rural Haat	Major Commodities Marketed	No. of Villages Connected
1	Buldhana	Dhad	Monday	Vegetables (all common vegetables), Fruits	30
2		Chandol	Sunday		10
3		Raipur	Tuesday		8
4		Deoulghat	Friday		9
5		Doodha	Saturday		20
6	Chikhli	Amdapur	Wednesday	Vegetables, Fruits	
7		Mera Bk.	Saturday		
8		Undri	Sunday		
9		Ancharwadi	Wednesday		
10		Kinhola	Wednesday		
11	Deulgaon Raja	Deulgaon Mahi	Sunday	Vegetable	25
12	Jalgaon Jamod	Asalgaon	Tuesday	Cereals, Pulses, Vegetables, Fruits, Oilseeds	35
13		Pimpad gaon-Kale	Friday		22
14		Jamod	Wednesday		30
15		Jalgaon	Thursday		100
16	Khamgaon	Pimpalgaon Raja	Wednesday	All common vegetables and fruits	8
17		Lakhanwada	Tuesday		15
18		Bhalegaon	Wednesday		4
19	Lonar	Lonar	Monday	Cotton, Soybean, Red Gram, Udid, Moong, Wheat, Gram, Mango, Sweet Lemon, Orange	25
20		Sultanpur	Tuesday		20
21		Bibi	Saturday		30
22		Kingaon Nuutu	Wednesday		15
23		Dirdab			15
24	Malkapur	Umaadi	Wednesday	Potato, Onion, Red Gram, Jowar, Maize	5
25		Malkapur	Saturday	Apples, Grapes, Lemon, Udid, Moong, Red Gram, Wheat, Maize, Vegetables	50
26	Mehkar	Mehkar	Sunday	Vegetable, Fruits	70
27		Janephal	Saturday	Vegetable, Fruits, Spices	30
28	Motala	Motala	Thursday	Vegetables and Fruits	11
29		Dh. Badhe	Wednesday		12
30		Phophali	Sunday		9
31		Rohinkhed	Sunday		7
32		Shelapur	Sunday		5
33		Shegaon Ba.	Friday		7
34		Korhala	Monday		4
35		Pimpri Gawli	Tuesday		3
36	Nandura	Nandura	Monday	Fruits and Vegetables	112
37		Jaolabazaar	Tuesday		10

38		Chandurbiswa	Sunday		15
		Khaira	Daily		7
39		Wadner-Bholji	Sunday		12
40	Sangrampur	Sangrampur	Tuesday	Vegetables, Fruits, Grains, etc.	16
41		Palsi Zha	Friday		4
42		Wankhed	Wednesday		4
43		Warwat B.	Saturday		10
44		Rudhana	Sunday		6
45		Kavthal	Wednesday		8
46		Tunki	Wednesday		15
47		Sonala	Sunday		12
48		Bawanbir	Monday		5
49	Sindkhedraja	Saakhar Kherda	Friday	Flower, Potato	22
50		Malkapur Pan	Thursday		15
51		Dusarbid	Tuesday		23
52		Kingaonraja	Friday		17
53		Sindkhedraja	Monday		37

Source: APMC Secretaries, Gram Panchayats

Annexure 2: Commodity wise existing grades, price variations

Commodity wise Grades										
	Commodity	Specifications						Price Range/quintal		
		Grade 1		Grade 2		Grade 3		High (Grade 1)	Av. (Grade 2)	Low (Grade 3)
		Local name	Specification	Local name	Specification	Local name	Specification			
1	Jowar	Grade1	Moisture 12% Damage grain 1% FM-Nil	Grade 2	Moisture 12% Damage Grain 2% Fm-0.10%	Grade 3	Moisture 14% Damage 3% FM-0.25%	2400	1500	1200
2	Wheat	2189	% of weevilled grains by weight Upto 1%,Foreign matter 0.75%,Clean Grains (High density)	Lok-1	% of weevilled grains by weight Above 1% to 4%,Foreign matter 0.75%,Medium Density	7070	% of weevilled grains by weight Above 4% to 7%,FM: Not more than 1%,Low Density	1500	1300	1050
3	Udid (Black Gram)	Special	% of weevilled grains by count Upto 2%,Foreign matter 0.1%,Moisture upto 10%, Damaged grains upto 0.5%	Standard	% of weevilled grains by count upto 4%,Foreign matter 0.5%,Moisture upto 12%, Damaged grains upto 2%	General	% of weevilled grains by count upto 6%, Foreign matter not more than0.75%, Moisture upto 14%, Damaged grains upto 5%	3500	3300	2800
4	Moong	Special	% of weevilled grains by count Upto 2%,Foreign matter 0.1%,Moisture upto 10%, Damaged grains upto 0.5%	Standard	% of weevilled grains by count upto 4%,Foreign matter 0.5%,Moisture upto 12%, Damaged grains upto 2%	General	% of weevilled grains by count upto 6%, Foreign matter not more than0.75%, Moisture upto 14%, Damaged grains upto 5%	4200	3800	3200

5	Tur (Red Gram)	Special	% of weevilled grains by count Upto 3%,Foreign matter 0.1%,Moisture upto 10%, Damaged grains upto 0.5%	Standard	% of weevilled grains by count upto 5%,Foreign matter 0.5%,Moisture upto 12%, Damaged grains upto 2%	General	% of weevilled grains by count upto 10%, Foreign matter not more than0.75%, Moisture upto 14%, Damaged grains upto 5%	4800	3800	3100
6	Bengal Gram (Chana)	Special	% of weevilled grains by count Upto 3%,Foreign matter 0.1%,Moisture upto 10%, Damaged grains upto 0.5%	Standard	% of weevilled grains by count upto 6%,Foreign matter 0.5%,Moisture upto 12%, Damaged grains upto 2%	General	% of weevilled grains by count upto 10%, Foreign matter not more than0.75%, Moisture upto 14%, Damaged grains upto 5%	4400	3460	2350
7	Soybean		% extraneous matter Upto 0.2%, split or crackled seed 2%, Moisture upto 7%, Damaged and weevilled seeds 0%, Immature and Shrivelled grains not more than 1.5%, oil content 20%	2	% extraneous matter Upto 0.75%,split or crackled seed 3%, Moisture upto 9%, Damaged and weevilled seeds 0.5%, Immature and Shrivelled grains not more than 3%, oil content 18%	3	% extraneous matter Upto 1%,split or crackled seed 4%, Moisture upto 12%, Damaged and weevilled seeds 2%, Immature and Shrivelled grains not more than 7%, oil content 15%	2200	2100	1900

8	Maize	Deshi Red	% of weevilled grains by count Upto 2%, Split or crackled seed 2%, Foreign matter 0.1%,Moisture upto 12%, Damaged grains upto 1%, Immature, shrivelled and green seeds percent by mass upto 2%	Hybrid	% of weevilled grains by count upto 4%,Foreign matter 0.25%,Moisture upto 12%, Damaged grains upto 2%, Immature and Shrivelled grains not more than 4%	3	% of weevilled grains by count upto 6%, Foreign matter not more than0.5%, Moisture upto 14%, Damaged grains upto 3%, Immature and Shrivelled grains not more than 6%	1250	1100	970
11	Papaya	Extra Class	Superior quality papayas, characteristic of the variety and /or commercial type, free of defects, with the exception of very slight superficial defects, Size : 200-300, 300-400, 400 – 500	Class I	Papayas of good quality, characteristic of the variety and/or commercial type, slight defects may be there i.e. A slight defect in shape, Slight skin defect not affecting more than 10% of the total surface area. The defects, must not, in any case, affect the pulp of the fruit. Size : 500-600, 600-700, 700 – 800	Class II	Includes papayas not qualifying for inclusion in higher grades, but satisfy the minimum requirements. May have defects in shape, colouring, skin defects not more than 15% of the total surface area, slight marks caused by pests. The defects must not affect the pulp of the fruit. Size : 800-1100,1100-1500, 1500 – 2000	1700	1400	900

Source: Agmark, Primary survey

Annexure 3: Constraint analysis of Existing market analysis(APMC in District)

Sr.No	Basic Infrastructure /proscess	Full/Partial/No Gap refered as F/P/N												
		Buldhana	Chikhli	Deoulgaon raja	Jalgaon Jamod	Khamgaon	Lonar	Malkapur	Mehkar	Motala	Nandura	Sangrampur	Shegaon	Sindkhedraja
1	Storage to farmers produce	N	N	N	F	N	N	N	P	P	F	F	P	P
2	Adequate certified electronic weighing	F	F	P	P	N	F	N	F	F	N	F	P	F
3	Auction Hall	F	F	F	F	P	F	F	F	F	F	F	F	F
4	Platform Shaded	N	N	N	N	P	P	P	N	N	P	F	P	P
5	Roads	F	N	N	N	N	N	N	N	P	N	F	P	P
6	Banking service for the farmers	P	F	F	P	F	F	F	P	F	F	F	N	F
	Process/Trading practice													
1	Open Auction	N	N	N	N	N	N	N	N	N	N	F	N	N
2	Marketing Charges	N	N	N	N	N	N	N	N	N	N	F	N	N
3	Use of electronic display boards	P	F	P	N	N	P	P	P	N	N	P	P	F

Source: Agmark and Primary Survey

Annexure 4.1: Information regarding Godowns of Wakhar Mahamandal & its inspections report

Project Director, (ATMA), Distict Superintending Agriculture Officer Buldhana Dist. Buldhana

Sr. No.	Taluka	Name and Address of Godown	Godown Storage Capacity (MT)	Crop Name	Meeting Officer Name & Date	Storage Grain before 15 July 2013						Facility in Godown (Y/N)			Stock Superintendent		
						Farmers		´Businessman		NAFED & Other		Grain Sieves & Grading	Laboratory	Weight	Officer Name	e-mail	Mobile No.
						No.	M Ton	No.	M Ton	No	M Ton						
1	Chikhli	Storage Superintendent, M.S. Warehousing Corporation, Chikhli-443201, Dist. Buldhana 07264-242214	10320	Soybean, Gram, Red Gram, Maize, Wheat, Fertilizer	Agriculture Marketing Expert MACP Dt.30/6/13	--	712	--	5830	0	0	Yes	Yes	Yes	Mr. A. T. Thakur	Chikhlimswc@gmail.com	9420563357
2	Undri	Chikhli Road Undri	2000												Mr. N.M. Jawarkar	-	9273923078
3	Khamgaon	Storage Superintendent, M.S. Warehousing Corporation, Market Yard Khamgaon Dist. Buldhana 07263-252288	3620	Soybean, Gram, Red Gram, Maize, Wheat, BajariFertilizer	Mr. S.E. Jagtap Dept. PD ATMA & AME MACP Dt.17/7/13	60	314	100	1320	0	0	Yes	Yes	Yes	Mr. P.M. Zope	khamgaon.mswc@gmail.com	9881852520
4	Mehkar	Storage Superintendent, M.S. Warehousing Corporation, Market Yard Mehkar Dist. Buldhana 07268-224734	9480	Soybean, Red Gram, Moong, Udid, Gram, Wheat, Fertilizer	Mr. S.E. Jagtap Dept. PD ATMA & AME MACP Dt.18/7/13	780	2384	45	581	0	0	Yes	Yes	Yes	Mr. G. A. Tawar	Mehkar.mswc@gmail.com	9423722709

5	Khamgaon (Warkhed)	Maharashtra State Wakhar Mahamandal Shegaon Road Khamgaon (Warkhed) Dist. Buldhana	29040	Wheat, Gram, Rice, Cotton	Mr. S.E. Jagtap Dept. PD ATMA & AME MACP Dt.17/7/13	0	0	0	1819	0	21000 FCI(26000) NAFED 1216	Yes	Yes	Yes	Mr. J. U. Wagh	mswc_manoj@rediffmail.com	9158001330
6	Khamgaon (PPP) Black Stone	Bhartiya Khadya Mahamandal BlackStone Tembhurni Khamgaon	35000	Cereals	Mr. S.E. Jagtap Dept. PD ATMA & AME MACP Dt.17/7/13	0	0	0	0	0	35000 FCI	Yes	Yes	Yes	Mr. J.B. Nikam	-	9922695477
7	MAlkapur	Maharashtra State Wakhar Mahamandal Nandura Road Malkapur	5840	Cotton, Fertilizer,	Mr. S.E. Jagtap Dept. PD ATMA & AME MACP Dt.17/7/13		39.4		1200	0	300	Yes	Yes	Yes	K.N.Patil	-	9579713020
8	Shegaon	Maharashtra State Wakhar Mahamandal Shriram Estate Bachraj Factory Near Police Station, Shegaon	4082	Wheat, Gram, Rice, Soybean, Udid, Red Gram	Mr. S.E. Jagtap Dept. PD ATMA & AME MACP Dt.17/7/13		191		1565	0	1641	Yes	Yes	Yes	Mr. S.R. Pimple	-	9921472770
9	D. Raja	APMC Market Yard D. Raja	3160	Wheat, Gram, Rice, Soybean, Udid, Red Gram											Mr. S.H. Kakade		9850039520

Annexure 4.2: Proposed works and Recent developments

Agriculture Produce Market Committees (APMCs)

Sr No	Source of Fund	Proposed Works	Provision Rs Crore	Present Status
1	MACP	Market Modernization and Improvement Plan of APMCs		
		Chikhli – Roads and godowns	2.21	Work in progress
		Mehkar - 2 tin shaded platforms, roads, toilets, 1godown in Mehkar and 1 godown in janephal	0.43	Work in progress
		Lonar and Nandura	Estimate to be given to MACP	Work in progress
2	RKVY	**Projects proposed under RKVY in District**		
		Model Marketing Project APMC Chikhli	1.5	Work in Progress
		APMC Mehkar (Weighing bridge, urinals, water facility, godowns, platform shaded area)	0.56	Work in Progress
		APMC Deulgaon Raja	3.71	Work in Progress

Source: CDAP (RKVY), Primary data collection, MACP

Other infrastructure development

RKVY	**Projects under RKVY in District**	Provision in Rs lakh	Present Status
1	Irrigation project at pentakli and kharagpurna	31919	Completed
2	Irrigation project at Gigaon	95853	Progress

Source: CDAP (RKVY), Primary data collection (MACP)

4.3 Dairy Development

RKVY	**Projects under RKVY in District**	Provision in Rs Crore	Present Status
	Capital investment for milk procurement at	0.86	Work in

1	primary DCS (Milk testing equipment, farmers and secretary training, management committee, automatic milk collection station)		Progress
2	Integrated Dairy farm project (Fodder godown, cattle shed, insurance, medical aid, chaff cut, milking machine, electronic weighing and testing, installation and commissioning)	5	Work in progress

Source: CDAP

4.4 Rural Haats – Proposed work and present status

Sr No	Source of Fund	Proposed Works	Provision in Rs lakh	Present Status
1	MACP	14 rural haats are being uplifted (basic infrastructure development and productive infrastructure development)	7484	In progress
2	DRDA	Establishment of tomato sauce ketchup industry at Ukli, Mehkar	20	Completed
		Establishment of Soya product industry Chikhli	15	Completed
		Establishment of Soya product industry Malkapur	200	Completed
		Establishment of chilli powder unit Malkapur	10	Completed
		Supply of milk cans to SHGs for milk collection from villages	60	Completed
3	NHM	ShraddhaMasale Food unit (Chillies and other spices)	5	Completed
		Jijamata Aromatic Industries	5	Completed
		Sadguru banana ripening chamber	5	Completed

Source: C-DAP (DRDA) and Primary data collection

4.5 Other Markets

1) Direct Purchases: –

Sr No	Name of licensee	Commodity Traded
1	Anant Agro, Chikhli	Vegetables
2	Nuziveedu seeds, GundlaPochampally, Medchal Mandal, Rangareddy district	BT Cotton
3	KrushiDhanBhavan,	Soybean (JS 335)

	D3 to D6, Additional MIDC, Aurangabad Road, Jalna – 431213	safflower (Bhima), jute (JRO-540)
4	Mahabeej Bhavan, Krishi Nagar, Akola – 444 104	BT Cotton, Bengal gram (Vijay, Jaaki 9218, Vishal, Dollar)
5	ITC Ltd. IBD 3rd Floor, Thaper House, Civil Line, Nagpur-440001,Ph-0712-2550133	All fruits and vegetables, Cereals & pulses
6	Panchaganga seeds Pvt. Ltd – Chikhli	Onion
7	ShraddhaMasale Food products Pvt Ltd, Village : Chikhli	Chilli and spices
8	Jijamata Aromatic industries Village : Andhera, Taluka: Deulgaon Raja	Soybean, sunflower, safflower
9	Sadguru Banana Food Processing Khelmali, JalgaonJamod (Ripening chamber for Banana)	Banana
10	Citronella Oil extraction unit, Jamthi, Buldhana (Medicinal plant of 80 litres)	Citronella Plant leaves
11	Rawal Factory, Nandurbar (Starch Factory)	Maize
12	Private Poultries in Jalgaon, Nandurbar, Dhule	Maize (fodder)

Source: Primary Data Collection

2) Other essential developments:

Processing units have been set up in the district rapidly in the last 4 to 5 years.

S. No	Category of Industry	Nos.	Investment (Rs. in Lakh)	Employment
1	Spinning	7	6647	2296
2	Oil Mills	115	4816	801
3	Ginning/ Ginning Pressing	89	4405	1414
4	Mini Dal Mill	47	1670	259
5	Seed Processing	12	580	142
6	Fertilizer	7	42	43
7	Winery	2	190	11
8	Cold Drink	25		
9	Food Products	58		

Source: Census List

Annexure 5: Cropwise issues and proposed strategies with units cost estimation

Sr. No.	Issues	Strategies	Activities	Source of Fund	Unit	Unit Cost	Total Units	Total Cost
1	Irrigation facility very poor leading to low productivity of crops like Wheat, Cotton, Gram, Groundnut etc.	To create awareness for growing improved variety of Cotton, Wheat and Gram instead of the local varieties	Demonstration, Training and Awareness Extension Programs	MACP	0.40 ha	*6924	458	3171000
				NFSM	0.40 ha	2000	1300	2600000
				ATMA	0.40 ha	4000	2000	8000000
				A3P	0.40 ha	2000	16250	32500000
		Ground water recharging activities need to be taken up, Rainwater re-routing could be worked out.	Development of infrastructural facility for rain water re-routing and ground water recharging.	VIDC	-	-	-	20000000
2	Grading not done for any crop. Done visually leading to huge discrepancies and variations in prices.	Provide specific standards for grading to get better price. Let quality grading be left to village cooperatives and incentives system worked out for entire village/ community, will take less efforts	Grading specifications to be given to all APMCs and awareness extension programs for grading system	MACP	0.40 ha	*6924	458	3171000
				NFSM	0.40 ha	2000	1300	2600000
				ATMA	0.40 ha	4000	2000	8000000
				A3P	0.40 ha	2000	16250	32500000
3	All the crops are brought by the farmers in their own sacks. This is then sold and emptied by the traders and transferred to similar sacks of their own. This process leads to excessive wastage	To promote contract farming to eliminate the process	Organize timely trainings and exposure visits	MACP			as per different scheme guidelines	
				Dept. of Agriculture, GoM				
4	Product aggregation should be done by small land holders, it will increase their bargaining power	Hand holding technique to be used, 'Train the trainer' programs system will work out nicely.	Small land owners may be trained to concentrate on one type of crop, Lot could be done at Panchayat level	MACP	0.40 ha	7000	210	1470000
		Training and exposure visits	Organize timely trainings and exposure visits	MACP	0.40 ha	*6924	458	3171000
				NFSM	0.40 ha	2000	16250	32500000
				ATMA	0.40 ha	4000	2000	8000000
				A3P	0.40 ha	2000	16250	32500000

5	Contract farming not done at all	Training and increasing the industry integration	A body of farmers should be form as an unit and then contract farming need to be done, special attention may be put on supply of seeds, know how, training, storage, segregation process before retrieval of crops by MACP, Contract farming may involve small loan to farmers/ availability of harvester and other related machines	MACP			as per different scheme guidelines	
				Dept. of Agriculture, GoM				
6	Profitability of Sunflower decreasing	Providing cheap transporting facility to bring the agricultural produce to the market	APMC shall arrange their collection centre of different village level for his purpose.	MACP	0.40 ha	*6924	458	3171000
				ATMA	0.40 ha	4000	2000	8000000
7	Infection in Gram, Soybean during Rainy season	Provide infrastructural facilities for proper storage and warehousing such as Grading centres, agro processing units.	We need quality champion at village level and further Champion at Taluka level whose jobs would be see any infection does not occur and remedial measures are readily available by expert mobile team/ medicines to be distributed, Involvement of Gram Sabha (Village Community) is essential	MACP	no. of godowns	900000	15	13500000
				NFSM	1 ha	2746	500	1373000

Annexure 6: Time frame for implementation of market led production

Activities	**Source of Fund**	**Unit**	**Unit Cost**	**Total Units**	**Total Cost**	**Time Frame (Units/Year)**				
						11-12	**12-13**	**13-14**	**14-15**	**15-16**
Demonstration, Training and Awareness Extension Programs	MACP	0.40 ha	*6924	458	3171000	634200	634200	634200	634200	634200
	NFSM	0.40 ha	2000	1300	2600000	520000	520000	520000	520000	520000
	ATMA	0.40 ha	4000	2000	8000000	1600000	1600000	1600000	1600000	1600000
	A3P	0.40 ha	2000	16250	32500000	6500000	6500000	6500000	6500000	6500000
Development of infrastructural facility for rain water re-routing and ground water recharging.	VIDC	-	-	-	20000000	4000000	4000000	4000000	4000000	4000000
Grading specifications to be given to all APMCs and awareness	MACP	0.40 ha	*6924	458	3171000	634200	634200	634200	634200	634200
	NFSM	0.40 ha	2000	1300	2600000	520000	520000	520000	520000	520000

extension programs for grading system	ATMA	0.40 ha	4000	2000	8000000	1600000	1600000	1600000	1600000	1600000
	A3P	0.40 ha	2000	16250	32500000	6500000	6500000	6500000	6500000	6500000
Organize timely trainings and exposure visits	MACP			as per different scheme guidelines						
	Dept. of Agriculture, GoM									
Small land owners may be trained to concentrate on one type of crop, Lot could be done at Panchayat level	MACP	0.40 ha	7000	210	1470000	294000	294000	294000	294000	294000
Organize timely trainings and exposure visits	MACP	0.40 ha	*6924	458	3171000	634200	634200	634200	634200	634200
	NFSM	0.40 ha	2000	16250	32500000	6500000	6500000	6500000	6500000	6500000
	ATMA	0.40 ha	4000	2000	8000000	1600000	1600000	1600000	1600000	1600000
	A3P	0.40 ha	2000	16250	32500000	6500000	6500000	6500000	6500000	6500000
A body of farmers should be form as an unit and then contract farming need to be done, special attention may be put on supply of seeds, know how, training, storage, segregation process before retrieval of crops by MACP, Contract farming may involve small loan to farmers/ availability of harvester and other related machines	MACP			as per different scheme guidelines						
	Dept. of Agriculture, GoM									
APMC shall arrange their collection centre of different village level for his purpose.	MACP	0.40 ha	*6924	458	3171000	634200	634200	634200	634200	634200
	ATMA	0.40 ha	4000	2000	8000000	1600000	1600000	1600000	1600000	1600000
We need quality champion at village level and further Champion at Taluka level whose jobs would be see any infection does not occur and remedial measures are readily available by expert mobile team/ medicines to be distributed, Involvement of Gram Sabha	MACP	no. of godowns	900000	15	13500000	2700000	2700000	2700000	2700000	2700000
	NFSM	1 ha	2746	500	1373000	274600	274600	274600	274600	274600

(Village Community) is essential										

Annexure 7: Cropwise constraint analysis for market led production

Constraint analysis for market led production in Soybean

Crop	**Soybean**	**Recommendation**	**Adaption**		
Sr. No.	**Technology for Market Led Production**		**F**	**P**	**N**
1	Farmers organized in Group	Farmers should be organized in group CIG, FIGs,PA,PGs,etc.Group formation is essential helping in allocation of tasks of input supply, production packages, grading, packing, processing and marketing.	F		
2	Crop Variety fetching good prices vis-a-vis having good productivity	JS-335, JS-9305, Samrudhi, Phule-Kalyani(DS-228)		P	
3	Post-Harvest Technology				
A	**Primary Processing**				
A	Drying (Moisture %)	Not more than 15-17%, Threshing must not be more than 400 rpm, damage not more than 3%		P	
B	Grading	Grading for Forward Market-Moisture-8%, Foreign Matter-2%, Damaged grains-2%, Green grains-7%	F		
C	% Foreign Matter	Less than 2%	F		
D	Packaging	Packing should be in Jute Gunny bags of various sizes from 50-90 kg for transportation and storage.	F		
E	Preventive Measures to protect from stored grains pest	Proper moisture,Store in warehouse, Fumigation			
F	Storage	Storage should be at a 10-12% moisture level, then sun dried and store in Gunny Bags		P	

G	Value Addition	Edible Oil, DOC, Soymilk,etc.. can be processed.		P	
B	**Marketing**				
A	Access to Market Information and Intelligence	Use of AGMARK, MSAMB websites, Newspaper, Radio,TVetc.	F		
B	Pledge loan Availment	To avoid distress sell ,storage in accredited warehouses & avail pledge loan from bank	F		
C	Packaging for sell	Wherever demand exist 5 &10 packing should be tried	F		
D	Product aggregation by small land holders.	Small marginal farmers should organize in producer groups & aggregate produce.	F		

F-Full Gap P-Partial Gap N-No Gap Change this to our analysis

Constraint analysis for market led production in Cotton

Sr. No.	**Technology for Market Led Production**	**Recommendation**	**Adaption**		
			F	**P**	**N**
1	Farmers organized in Group	Farmers should be organized in group CIG, FIGs, PA, PGs etc. Group formation is essential helping in allocation of tasks of input supply, production packages, grading, packing, processing and marketing.		P	
2	Post-Harvest Technology				
A	**Primary Processing (Picking)**	Clean Picking should be done early morning and evening.		P	
A	Grading	There are 6 grades and grading specifications are as per staple length. Grade 1: Extra Long: 30 mm and above. Grade 2: Superior-27 to 29.5 mm. Grade 3: Long Staple- 24.5 to 26.5mm. Grade 4: Super- 22 to 24mm. Grade 5: Medium- 20 to 21.5mm. Grade 6: Short staple- 19.5 and below length.			N
B	% Foreign Matter	It should be free from stained and immature locks, as well as trash in the form of hulls, stalks		P	

		and leafy bits and sand.			
C	Packaging	Packaging should be in Woven Cotton Bags Warp, Knitted Cotton Bags, Polyethylene Film Bags, Polypropylene Bags, Polyethylene Woven Bags, and Jute Bags.		P	
D	Storage	It should be stored in dry, area free from rats and danger of fire under the shed.		P	
E	Value Addition	Ginning, Pressing		P	
B	**Marketing**				
A	Access to Market Information and Intelligence	Use of AGMARK, MSAMB websites, Newspaper, Radio, TV, etc.		P	
B	Pledge loan facility:	To avoid distress sell ,storage in accredited warehouses & avail pledge loan from bank	F		
C	Product aggregation	Small marginal farmers should organize in producer groups & aggregate produce.	F		
D	Contract farming	Promote the contract farming with Public/Private Partnership.		P	
E	Participation in commodity Exchange/Forward markets	Organize in producer groups aggregate produce &try this as alternative market		P	

F-Full Gap P-Partial Gap N-No Gap Change this to our analysis

Constraint analysis for market led production in Red Gram

Crop	**Red Gram**	**Recommendation**	**Adaption**		
Sr. No	**Technology for Market Led Production**			**P**	**N**
1	Farmers organized in Group	Farmers should be organized in group CIG, FIGs, PA, PGs, etc. Group formation is essential helping in allocation of tasks of input supply, production packages, grading, packing, processing and marketing.		P	
2	Crop Variety fetching good prices vis-a-vis having good productivity	BSMR 736, BSMR 853, ICPL 8863 (Maruti), ICPL 87119 (Asha)		P	

3	Post-Harvest Technology				
A	**Primary Processing**				
A	Grading	Grade 1: % of weevilled grains by count Up to 2%,Foreign matter 0.1%,Moisture up to 10%, Damaged grains up to 0.5% Grade 2: % of weevilled grains by count up to 4%,Foreign matter 0.5%,Moisture up to 12%, Damaged grains up to 2% Grade 3 : % of weevilled grains by count up to 6%, Foreign matter not more than 0.75%, Moisture up to 14%, Damaged grains up to 5%	F		
B	% Foreign Matter	Not more than 2%		P	
C	Packaging	Jute bags, Polythene Impregnated jute bags, Cloth bags etc. of 50 kg for transportation & Handling	F		
D	Preventive Measures to protect from stored grains pest	Proper moisture, Store in warehouse,Fumigation	F		
E	Value Addition	Processing in Dal mills	F		
B	**Marketing**				
A	Access to Market Information and Intelligence	Use of AGMARK, MSAMB websites, Newspaper ,Radio ,TV etc.	P		
B	Pledge loan Availment	To avoid distress sell ,storage in accredited warehouses & avail pledge loan from bank	P		
C	Packaging for retail sell	Wherever demand exist 5 &10 packing should be tried	P		
D	Product aggregation	Small marginal farmers should organize in producer groups & aggregate produce.	P		
E	Contract farming	Promote the contract farming with Public/Private Partnership.	P		
F	Participation in commodity Exchange/Forward markets	Organize in producer groups aggregate produce & use commodity exchange as alternative market	p		

F-Full Gap P-Partial Gap N-No Gap Change this to our analysis

Constraint analysis for market led production in Bengal Gram

Crop	Gram	Recommendation	Adaption		
Sr. No.	Technology for Market Led Production		F	P	N
1	Farmers organized in Group	Farmers should be organized in group CIG, FIGs,PA,PGs,etc.Group formation is essential helping in allocation of tasks of input supply, production packages, grading, packing, processing and marketing.		P	
2	Crop Variety fetching good prices	Vijay**,**Digvijay, Gowrang, Mix, Jaaki 9218, PKV Kabuli 2, PKV Kabuli 4-1		P	
3	Post-Harvest Technology				
A	**Primary Processing**				
B	Grading	1. Whole- Moisture-10%, FM-0.5-1.50%. 2. Split Pulses(Dal)- Moisture-14%, FM-1%	F		
C	Foreign Matter	Not more than 3 %	F		
D	Packaging	Jute bags, Polythene Impregnated jute bags, Cloth bags etc. use for transportation	F		
E	Preventive Measures to protect from stored grains pest	Proper moisture, Store in warehouse,Fumigation	F		
F	Storage	At room temperature with 9-12% moisture level in Jute bags of 50 kg, New improved bins	F		
E	Value Addition	Processing in Dal mills, flour, etc.	F		
B	**Marketing**				
A	Access to Market Information and Intelligence	Use of AGMARK, MSAMB websites, Newspaper, Radio,TV, SMS Service etc.	F		
B	Pledge loan Availment	To avoid distress sell,storage in accredited warehouses & avail pledge loan from bank	F		
C	Packaging for retail sell	5 &10 packing should be done	F		

D	Product aggregation	Small marginal farmers should organize in producer groups & aggregate produce.	F		
E	Contract farming	Promote the contract farming with Public/Private Partnership.	F		
F	Participation in commodity Exchange/Forward markets	Organize in producer groups aggregate produce & use commodity exchange as alternative market	F		

F-Full Gap P-Partial Gap N-No Gap Change this to our analysis

Constraint analysis for market led production in Maize

Sr. No.	Technology for Market Led Production	Recommendation	Adaption		
			F	P	N
1	Farmers organized in Group	Farmers should be organized in group CIG, FIGs, PA, PGs etc.. Group formation is essential helping in allocation of tasks of input supply, production packages, grading, packing, processing and marketing.	F		
2	Crop Variety fetching good prices vis-a-vis having good productivity	Pinnacle, Kargil, 900M, Madhumakka, White Makka		P	
3	Post-Harvest Technology				
A	**Primary Processing**				
A	Drying (Moisture %)	Not more than 15-20% moisture content		P	
B	Grading	Grade 1: % of weevilled grains by count Up to 2%, Split or crackled seed 2%, Foreign matter 0.1%,Moisture up to 12%, Damaged grains up to 1%, Immature, shriveled and green seeds percent by mass up to 2% Grade 2 : % of weevilled grains by count up to 4%,Foreign matter 0.25%,Moisture up to 12%, Damaged grains up to 2%, Immature and shriveled grains not more than 4%	F		

		Grade 3 : % of weevilled grains by count up to 6%, Foreign matter not more than0.5%, Moisture up to 14%, Damaged grains up to 3%, Immature and shriveled grains not more than 6%			
C	% Foreign Matter	Foreign matter should not be more than 1%		P	
D	Packaging	Jute bags, Polythene Impregnated jute bags, Cloth bags etc. for transportation and Handling	F		
B	**Marketing**				
A	Access to Market Information and Intelligence	Use of AGMARK, MSAMB websites, Newspaper, Radio,TV, SMS Service etc.	F		
B	Pledge loan Availability	To avoid distress sell ,storage in accredited warehouses & avail pledge loan from bank	F		
C	Packaging for sell	Packaging in Polythene Impregnated jute bags 10- 25kg , 50 kg	F		
D	Product aggregation	Small marginal farmers should organize in producer groups & aggregate produce.	F		
E	Contract farming	Promote the contract farming with Public/Private Partnership.	F		
F	Participation in commodity Exchange/Forward markets	Organize in producer groups aggregate produce &try this as alternative market.	F		

F-Full Gap P-Partial Gap N-No Gap Change this to our analysis