STUDY TOUR REPORT OF AGRI EXPORT ZONE OFFICERS VISITED IN JALGAON, APEDA - MUMBAI, MAPMC - MUMBAI, MOTHERS DAIRY & AIR CARGO UNIT IN MAHARASHTRA

By

Team Members
AEZ for Fruits and Vegetables

Submitted to

Principal Secretary to Agriculture
Government of Kerala
Message

I am glad to know that the Agri Export Zone study team went to Jalgoan and Mumbai in Maharashtra has now prepared a detailed study report to elucidate their experiences with others. Unleashing the powers of high tech farming, with in a short time Jalgoan has emerged as the "banana bowl" of our country. Agri trading system developed by MAPMC by their steadfast effort is a role model to entire country. Six Agri Export Zones are operational on a remarkable mode in Maharashtra.

I congratulate the team members for this noble effort, as this will inspire others also. I request all colleagues to go through this document and get the experiences shared with others interested.

With regards,

K.R. Jyothilal, I.A.S
Director of Agriculture
PREFACE

Government of Kerala as per Order No. G.O.(Rt)476/04/AD dated 26.03.04 accorded sanction for all the Agri Export Zone Officers exclusively selected for the implementation of AEZ for fruits and vegetables in the State of Kerala to visit and study the activities going on in other state of Indian Union.

All the 12 officers were grouped into three and permitted to visit various states. The third group consisting of the following officers visited the Banana areas in Jalgaon and various exports and trading activities going on in Mumbai, Maharashtra State from 22.06.04 to 29.06.04.

1. **S. Mohanan, Deputy Director of Agriculture (AEZ Cell),**
   Directorate of Agriculture, Thiruvananthapuram

2. **K. G. Girish Kumar, Agricultural Officer (AEZ)**
   Thiruvananthapuram District

3. **Sibi T. Needissery, Agricultural Officer (AEZ)**
   Alappuzha District

4. **Tanie Thomas, Agricultural Officer (AEZ)**
   Ernakulam District

5. **V. N. Shibu Kumar, Agricultural Officer (AEZ)**
   Thrissur District

   It is an interesting and wonderful experience for us. In order to share our experience with other officers in Department of Agriculture, we are proud enough to present a glimpses of our visit in –
   - the Banana bowl of our country namely Jalgaon
   - the activities related to their successful achievements
   - the institutions which helped them to achieve highest productivity in the world
   - their habituate in promoting trade and exports
   - and their promotional and marketing activities at Mumbai in Maharashtra State of Indian Union. Our suggestions in this regard is given on Pages 15 and 28 of this write-up. Any suggestions and queries in this regard is highly solicited.

   With regards,

   **Team Members**

   Vikasbhavan

   12-07-04
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Visit in Jalgaon
Our Team Members with Mr. Avinesh Patel, Assistant Secretary, MAPMC, Mumbai:-

S. Mohanan, Deputy Director of Agriculture (AEZ Cell), Directorate of Agriculture, Thiruvananthapuram

K. G. Girish Kumar, Agricultural Officer (AEZ) Thiruvananthapuram District

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V. N. Shibu Kumar, Agricultural Officer (AEZ) Thrissur District
Study trip to Jalgoan, banana district of Maharashtra, had given us a chance to meet the farmers producing 60 - 70 Kg of banana per plant: quiet surprising. Jalgoan, a city 400 KM away from Mumbai located in northern Maharashtra has a geographical area of 11765 sq.km, is known as the "banana district" of Maharashtra. The city is supported with a population of 367936 of which 1904437 are male and 1775499are female. Total cropped area of the district comes to 180100 hectares. There are 15 taluks and 1498 villages and other places in Jalgaon district. The taluks are Jalgaon, Jamner, Erandol, Dharangaon, Bhusaval, Bodwad, Yaval, Raver, MuktaINagar, Amalner, Chopda, Parola, Pachora, Chalisgaon and Bhadgaon. Important growth centres are Bhusawal, Chalisgaon and Chopda. Jalgaon district has excellent natural forestry with "Satpuda hills" range near Chopda Taluk. Jalgaon is just 55kms away from World famous Historical Heritage Ajanta Caves & around 150kms from Ellora Caves and is located towards Aurangabad. Various other religious places like Padmalaya, Manudevi, Patnadevi are located in Jalgaon district. 'unapdev', the hot water fountain is also just 40 kms away from Jalgaon city. "Mehrun" is another famous spot in the district for its famous fruit 'Ber'. "AmbRishi Ashrama" is another famous spot in the "Ajanta Caves" hills area. Jalgaon also has rarely seen animals and rivers base.

Jalgaon Market is mainly known for Agriculture, Gold, Pulses, Wholesale Tea, and Grains Trading. 'Banana' is Jalgaon's main crop with 'cotton' having second priority. Around 60% of district money circulation depends on agriculture income and therefore factors like flooding, low-rainfall etc affects the city economy a lot. Jalgaon also produces excellent quality milk and therefore many national level ice cream and other milk-product companies have their collection centres in various parts of the district.

Out of the total banana area of 72000 ha in Maharashtra, contribution of Jalgaon is about 48000 ha. Let us explain how Jalgaon differs from other banana growing areas.

- Average productivity of banana is 80 tons per hectare, which is highest in the country. Average bunch weight comes to 20 – 25 Kg.
- The farmers adopt closer spacing of 1.5m x1.5m (1742 plants per acre) and such a closer spacing does not affect the crop performance.
More than 80% of farmers are following high-tech agricultural practices like drip irrigation, planting tissue culture plants, fertigation etc. Both large and small / marginal farmers have adopted this high tech practices with out much variations. It is noted that drip irrigation resulted 15% reduction in labour expenditure in irrigation and fertilizer application.

Due to adoption of high-tech practices, considerable reduction occurs in cost of cultivation especially in labour and average cost of cultivation comes to Rs. 45-50 per plant where as the income from one plant goes up to Rs. 120-150 (@ Rs. 4.70 per Kg) making banana cultivation highly profitable.

Annual sales turn over of banana from Jalgaon is about 800 crores and around 5-6 lakh farmers/ agricultural labourers are engaging in this enterprise.

Cent percent of the production is transported to northern markets like New Delhi mainly through railway.

Annual contribution of Jalgaon to Indian Railways is Rs35-40 crores as transportation charges which is the highest in the country. It is quiet interesting to know that Ravel Taluk in Jalgaon is the only taluk in the country having five major railway stations of which three are exclusively for loading banana. Special trains are commuting regularly between Jalgaon and New Delhi carrying tons of banana. Railways also provide 30% concession to the farmers of Jalgaon.

There are around 50000 trucks and 100 trains are commuting between Jalgaon and North India every year.

**History of Banana cultivation in Jalgaon**

Old farmers recollected the history of banana cultivation in Jalgaon. Mr. Vasantha Rao Mahajan, who after taking post graduation in Agriculture, has selected farming as his means for living, described to us about the evolution of banana cultivation. Cultivation of banana in Jalgaon started during 1925. Banana was taken to Jalgaon from Kongan areas by the soldiers of Chatrapathi Sivaji during their conquering mission journey to the south. Even though the day temperature at Jalgaon goes up to 45-48 degree celsius during summer, presence of "Satpuda mountain" and "Tapi" river are the
blessings to their district favouring banana cultivation. Actually Jalgaon is the delta of river Tapi and its tributaries originated from Sadhpura mountain.

Discussion with Mr. R.B. Jain, Chief Technical Officer, Jain Irrigation System.

Head Quarters of Jain Irrigation Systems at Jalgaon.

Team Members with Mr. B.D. Jade, Jain Irrigation Systems at a Banana field in Jalgaon. Tissue culture Grand Naine variety is planted here.
During initial stages, farmers were sought to traditional cultivation practices like flood irrigation, sucker planting etc but later shifted to high tech cultivation. Intervention of Jain Irrigation systems, the leading company in drip irrigation systems and tissue culture plant production has a central role in making such a change. It is learnt from the old farmers that it was nothing but the series of orientation cum demonstration classes conducted by the Jains and the continuous field level work carried out by their expert extension staff, which helped to bring such a change in banana production of the area. After switching over to high tech practices on the double Jalgaon was emerged as the “banana bowl” of our country.

Old farmers commented that during 1920s water table was at about 25 ft depth which gone down to 250 ft now. But this alarming situation does not in any way affect the production as they resorted to water conservation and applying judicious water management practices.

**Cultivation practices**

Major varieties grown at Jalgaon are Cavendish type of which the most popular one is “Grand Naine”- an imported variety from Israel. Other major local varieties are “Sreemanthy” and “Mahalekshmi” the performance of which is also better.

More than 60 % farmers prefer tissue culture plants. Jain irrigation Systems is the major suppliers of tissue culture plants. Tissue culture laboratory installed by the company at Jalgaon produces about 6 million plants annually and supplies to the farmers after secondary hardening. They have put up a secondary hardening shed having an area of 50 acres. Important features of tissue culture plants are:

- Period of Grand Naine variety is reduced considerably i.e. from 18 months to 11 months.
- Two fold increase in yield is obtained than sucker planting (average yield 25 – 3- Kg for tissue culture plants)
- Two ratoons can be taken
- First ratoon yield is higher than first crop.
- Inter cultivation with vegetable and green manure crops are easy

**A banana field at Ravel, Jalgaon with drip irrigation system**

Primary hardening is done for a period of 6 weeks in fully automatic
green houses having controlled atmospheric conditions. Then the plants are transferred to shade houses for secondary hardening and kept there for about 4 weeks before supplying to farmers. Jains supply 60,000 - 70,000 plants daily.

**Fertilizer dosage**

**Nitrogen:**
In seven splits at 30 DAP, 75 DAP, 75 DAP, 110 DAP, 165 DAP, 216 DAP, 255 DAP and 300 DAP. Recommendations of nitrogen are 200 gm per plant. 50% of nitrogen is given in first four splits and remaining 50% in next three splits.

**Phosphorus:**
Recommended dosage is 40 gm per plant, which is given as basal.

**Potassium:**
Recommended dosage is 200 gm per plant, which is given in four splits i.e. at 30, DAP, 165 DAP, 210 DAP and 300 DAP.

**FYM Manure:**
FYM is applied at the rate of 10 Kg per plant.

**Micro nutrient recommendations:**
Scientists Mr. B.B.Dhakare, R.D.Glikwad, and S.S.Shinde at Banana Research station, Jalgaon told that micro nutrient deficiency cause drastic yield reduction in banana. Micro nutrient application results significant positive effect on banana productivity. Micro nutrient recommendation given by the Banana Research Station is as follows.

- 0.5% Iron in the form of Iron Sulphate.
- 0.2% Zinc in the form of Zinc Sulphate.
- 0.1% Boron in the form of Borax.
- 0.1% Copper in the form of Copper Sulphate.

These are given as foliar sprays at 3rd and 5th month after planting. After emergence Potassium Meta bisulphate at 0.5% spray should be given as bunch spray along with 1% urea, which increases bunch weight by 15%- 20%.

**Irrigation:**
80% of farmers sought to drip irrigation and advantage of this system of irrigation includes

- No labour requirement for irrigation
- Fertilisers can also be given through drips there by saving labour and increasing fertilizer use efficiency.
- Water conservation.
• Increase in productivity up to 35 - 75% more than flood irrigated crops.
Marginal Farmer Mr. Dynaswer Bai & His Brother at their Banana field

Mr. Vasantha Rao Mahajan narrating the history of Banana cultivation in Jalgaon

Ratooning in Banana
AGENCIES ASSOCIATED WITH BANANA CULTIVATION AT JALGAON

1. JAIN IRRIGATION SYSTEM LTD

Credit for wide spread adoption of high tech agricultural practices like micro irrigation, fertigation, tissue culture planting material etc goes to Jalgaon based Jain irrigation Systems ltd which helped the local farmers in following ways.

a. Supplying best quality tissue culture planting materials in large sum. The number supplied per year goes up to 6 million, which shows their capability in handling such a professional job. They are supplying planting materials to other states like MP, Gujarat etc. Dr.V.P.Singh and 180 subordinates working in Jain’s tissue culture laboratory are the team behind these noteworthy achievements. They are selling the seedlings at Rs 12 per seedling.

b. Providing best quality drip irrigation accessories and field level technical assistance to farmers for successful installation is of much help to banana growers of the area. They manufacture each and every part of micro irrigation systems including HPDE, drippers, laterals, saddles, reducers etc. They have also developed fully automatic irrigation systems, which are of following kinds.

1. Time based system (time is the basis)
2. Volume based system (pre set volume can be applied)
3. Real time feed back system (sensor based system)

Automatic irrigation system, which includes special components like controller, control valves, solenoid coils, automatic metering valves and sensors are now gaining popularity in banana fields at Jalgaon.

c. Jains Food Park commissioned during 1996, is a strong intervention in banana processing which ensures better price to banana growers. Jain Irrigation systems commissioned India’s largest banana processing unit in collaboration with Chiquita International (an USA based company). The factory processes about 230tons of banana daily manufacturing about 100tons of banana puree/ concentrate and supplying to Cocoa cola in America. Officer in charge of banana puree unit is Mr. K.B.Barhata.
They have also put up largest fruit and vegetable dehydration factory which processes 120 tons of fresh vegetable (mainly onion) converting it to about 15 tons of dehydrated products which includes standard chopped, large chopped, small chopped, minced, grounded, granulated, standard powder, dried, sliced, kibbled etc. Officer in charge of this unit is Mr. N.H. Chaudhury.

d. **Extension support** provided by Jain to the farmers is quite amazing. They have established a well-equipped training centre at their head quarters at Jalgaon. Training fee of Rs. 150 per farmer per day has to be paid for the training programme on high tech agriculture. During our visit we have seen two batches of farmers sent by Government of Assam being trained at Jain’s training centre “Gurukula”. Jain group has established a hefty extension network among the farmers at Jalgaon which is one of the reasons for wide spread adoption of high tech farming practices in banana cultivation. Dr. B.D. Jade, Manager, Technical services is holding in charge of the extension activities.

2. **MAHABANANA**

Mahabanana is an autonomous body registered under co-operative Act and major area of activity is confined to marketing of banana. An executive committee consisting of 9 executive members of which 3 are executive partners and 6 are farmer representatives runs Mahabanana. One executive partner is the Chairman of Mahabanana. At present Mr. G. Dyandeo G Mahajan is the Chairman of Mahabanana who was honoured with “Udyam Pandit” title by the State Government of Maharashtra.

Major activities of Mahabanana are as follows.
1. Promotion of export of banana
2. Domestic marketing promotion of banana
3. Offering guidance and training on the processes from planting to marketing.
4. Supplying quality planting materials

Mahabanana registered during 2002 have already sent three consignments of banana to Dubai through **Maharashtra State Agriculture Marketing Board, Pune**. They have also started a local marketing/procurement centre. It has also developed a market information centre. With the financial aid of Rs 5.60 lakhs from FAO, Mahabanana
has installed a Pack House. Total cost involved for pack house is Rs.18 lakhs. They have also started a farmers training programme to provide technology know how in pre and post harvest management of banana to increase quality. There are 26 co-operative societies registered under Mahabanana as its member societies. In each such member society there are 300 - 350 small and marginal farmers. At present there are about 8000 farmers enrolled as members under Mahabanana.

3. MULTI PURPOSE SOCIETIES

There are about 800 multipurpose societies functioning well in Jalgaon which are the major agencies engaged in input supply. The multipurpose societies also play a pivotal role in providing credit to farmers. In any rural village like Ravel, Chinawal or Waghoda we can see well established such co-operative societies, which are now, become the part of rural farmers’ life.

4. BANANA RESEARCH STATION

BRS is situated at Jalgaon city and having an area of 10 ha has been functioning under Mahatma Phul Krishi Vidhyalay University at Rahurie since 1958. It was started at Coppergoan in Ahmednagar and during 1960s it was shifted to Pune. Then in 1971 it was shifted to Raver Village and after 10 years to Yavel. Again after 10 years it was shifted to the present place at Jalgaon. Major research activities going on here are as follows.

1. Trials on effect of Azospirillum on banana productivity.
2. Nutrient management practices
3. Pest and Disease management
4. Water management practices

There are 17 staffs engaged in research works at its four departments explicitly Agricultural chemistry and Soil Science, Entomology, Pathology and Horticulture. There are one Horticulturalist, four Assistant professors, four Senior Research Assistants and two Agricultural Assistants working at this station. Other staff members are non-technical.

5. STATE DEPARTMENT OF AGRICULTURE

Intervention by the state department of Agriculture to support banana cultivation is diminutive. The only banana assistance programme implemented through the state department of Agriculture is the scheme for drip irrigation. Prior to 1998 there were three separate departments namely Department of Agricultural Extension, Department of Horticulture and Department of Soil Conservation, which then merged together as Department of Agriculture.
enabling “Single Window System” of service delivery.

At present there are separate Directors for Horticulture, Soil Conservation, Quality Control and Agricultural Extension.

The state is divided to many divisions headed by Divisional Joint Director. Under each division there will be 2-3 districts. At district level there is one District Superintendent Agricultural Officer. Under each district there are 3-4 sub divisions headed by class I officers. Under each sub division there are 3-5 talukas headed by Taluka Agricultural Officers. Under each taluk there are 2-3 circle headed by Circle Agricultural officers. Under the CAOs there are 3 - 4 Agricultural Supervisors (for 10-12 villages - one Agricultural Supervisor). At each village one Agricultural Assistant is posted.

For supporting local bodies separate officers are posted in Maharashtra and they are working as a parallel system. Three District Agricultural officers are posted at Zilla Parishat to look after General Agricultural schemes, SCP schemes and Campaign works. At taluk level one Senior Agricultural officer and 2-3 Agricultural Officers are posted to look after the Zilla parishat schemes. They assist the District Agricultural officer in implementing the schemes of Zillah Parishat.

Major schemes implemented by the department of agriculture are Watershed development programme, 100% Horticulture Plantation Programmes, Nursery and Production of seedlings, Demonstrations, trainings to farmers, Technology Mission on cotton, Minikit distribution etc.

Local bodies are responsible for Quality Control, Agricultural input supply, Central sector schemes, Agricultural implements distribution etc.

There are five farms under department of Agriculture and are now converted into polyclinics where demonstrations, trainings etc are carried out. Farms are now designated as profit making centres where activities like vermin culture production, neem kernel production, neem oil extraction etc are carried out and the revenue obtained will be remitted to the government.

There are three biological labs in Jalgaon, Dulia and Vidharbha districts. At these labs production of bio pesticides and bio control agents are carried out on large scale.

Soil testing lab is established at each district head quarters where soil and water analysis are carried out. In addition there are four seed testing labs and two FQCL cum PPC labs put up at state level.

Assistance to farmers is given to the credit institution by way of cheques. Cheques will be issued at the district level based
on the statements/ bills submitted by the lower level officials and send the same to the concerned credit institution for transfer crediting.

It is interesting to know the method they follow to provide relief under natural calamity of crops. When ever crop damage occur due to natural calamity, the department officials from department of Agriculture will conduct field level verification, assess the damage, prepare detailed verification report and submit the same to the Department of Revenue for sanctioning the relief. The Revenue Department will sanction the amount to the concerned local body and local bodies are responsible for the distribution of assistance to farmers that too by way of cheques to the concerned credit institutions.

Officer from whom details were collected:
Mr.K.B.Thakase
District Superintendent Agricultural Officer, Jalgaon District

6. MARKETING AGENCIES

Private traders and fruit sale co-operatives mainly carry out trading of banana. Private traders carry out 95% of trade and they even provide credit to farmers for cultivation but with high rate of interest. There are 55 fruit sale co-operative societies functioning at Jalgaon, which carried out about 5% of banana trade. We visited and studied Fruit and Vegetable Marketing and processing society at Chinawal and Ravel Fruit Marketing Society at Ravel which are very active in farm front.

Some success stories of farmers at Jalgaon

Let us know the story of Mr. Vasantha Rao Mahajan aged 73 whose contribution in the fruition of banana cultivation in Jalgaon is quiet amazing. After taking post graduation in Agriculture, he decided to opt farming rather than going for employment. He along with another social worker Mr. Digimber Vithu Narkhole worked hard in developing banana cultivation and in popularising productivity oriented cultivation. Old farmers of Raver village recollected the thousands of farmer meetings organized by these two veterans and the impact generated by them. They taught the village farmers about agronomic practices, soil testing, water conservation methods, drip irrigation etc.

The State Government of Maharashtra honoured Mr.
V.R. Mahajan with the title “Krishibhushan- Sheti Mitra”. He is at present selected as the Farm Leader Trainee (USA). Now he is the Honorary Secretary of Banana Growers Association of India and Director of Agricultural produce marketing Committee, Ravel. His co-worker Mr. D.V. Narkhade aged 86 now is at present the Chairman of Fruit Sale Society of Chinawal and the Chairman of Madhukar Co-operative sugar factory at Faizpur.

Mr. V.R. Mahajan possesses 20 acres of land, which is completely planted with banana. Varieties planted are Grand Naine and Sree Manthy. He is getting an average yield of 25-30 tons per hectare.

When banana cultivator D.K. Mahajan decided to abandon conventional farming methods at his Waghoda village farm and switch over to high tech agricultural practices, all he expected was increased yield and big profits. To his surprise this resulted in widespread adoption of high tech farming by neighboring farmers in the village, as the outcome generated by him was spectacular. He was awarded with “Nallaivazhai Award” during 2001. Starting his life as a small farmer in his early life now he is the biggest farmer in Waghoda village possessing about 120 acres of land. He is emerged as a big banana trader also sending daily trucks of banana to New Delhi markets.

Here is the story of a small farmer who only by carrying out banana cultivation adopting high tech practices minting high profits and accruing one acre of land every year. We learnt the success story of two brothers from Arsoli taluk in Jalgaon. The elder brother Mr. Dynaswer Bai was a casual labour at Jains Irrigation Systems. Learning about the drip irrigation systems and after attending the training classes at Jain’s HQ, they were motivated enough to start banana cultivation in his small plot of 0.5 acres during 1998. They started with 850 plants and started making profits. Every year they started purchasing new land and now they possess 4 acres of land. In addition to banana they also raised betel wine and tuber crops in their plots. They use only tissue culture plants and all plots are drip irrigated. They dug an open well for irrigation and getting 22 – 28 Kg per bunch. They have also availed the credit facility in the form of Kissan Credit Card from Central bank of India, Arsoli for Rs 85000 to create infrastructure facilities. According to them drip irrigation, even though it requires higher initial investment, is profitable as it reduces labour
requirement considerably and high water use efficiency is ensured.

Jalgaon is shining before us a role model in adopting high tech farming practices in a meticulous manner and reaping its results collectively by the society. Now the trading of banana crop supports the entire economy of Jalgaon. Our farmers should get a chance to see the developments they achieved, which will help mass adoption of scientific practices in our state. This is an absolute requirement to compete in global trade.

Our suggestions:

1. A group of farmers and officials with positive outlook from the state should be sent to Jalgaon and should be trained at Jain Irrigation Systems for 7 days. This will build up confidence in them about adoption of latest technologies in farming. The farmers thus trained should be designated as “master farmers” and special package programme should be prepared for these farmers to take up high tech cultivation in their fields. Sufficient credit support, input availability, convergence of various programmes etc should be ensured. A special programme may be prepared for this with the objective of massive adoption of high tech practices in banana cultivation and increase our productivity.

2. Higher-level officials from our state shall visit Jalgaon, which will facilitate better rapport and joint ventures between the State Government of Maharashtra, Jain irrigation Systems and Mahabanana.

3. During our discussion with the Chief Technical Officer, Jain Irrigation Systems, it is learnt that they have plan to start a big banana-processing unit somewhere in southern areas. This opportunity may properly be utilised and we may try to attract the big investment to our state, which will be much beneficial to our farmers.
At the Headquarters of Mahabanana - Jalgaon

Discussion with the Chairman, Secretary of Mahabanana

During the visit at Tissue culture lab of Jain Irrigation System - the team members along with Mr. V. P. Singh, Head, Tissue Culture Division
Pack house owned by Mahabanana - at Jalgaon

An inner view...

Discussion with District Superintendent Agricultural Officer - Jalgaon
About JAIN Irrigation Systems

At Jalgaon, Mr. B. D. Jade Manager Technical Services, Jain Irrigation Systems Limited, accompanied us throughout our study trips at Jalgaon and co-ordinated all our visits and discussions successfully. The services rendered by him were well appreciated by our team members and we are highly grateful to him and the organisation.

We also met Mr. R. B. Jain, Chief Technical Officer (CTO) of the company and had a detailed discussion with him about the company and its activities. Story of Jain Irrigation System is not mere the story of a big company but the story which reveals how a company made revolution in farm production by bringing high tech practices in to the agriculture scenario.

Company started functioning during 1887 with a capital of Rs. 7000 and by 1963 it took over activities in agriculture sector. Let us know about the step stones of Jains.

- At first started as dealer of kerosene, then dealers of spare parts of two and three wheelers.
- Then dealership of sprinklers and tractors and other farm equipments added.
- In 1978 took over a 14 years old banana powder unit and started ‘Papain’ extract unit with an investment of 3.2 million.
- In 1980 manufacturing of PVC pipes commenced with annual capacity of 300 MT, which was increased to 40000 MT now.
- In 1989 manufacturing of Micro Irrigation system commenced and have successfully introduced the concept of micro irrigation. A strong extension wing started functioning at Jain HG to support farmers mainly at Jalgaon to switch out to high - tech farming it really changed Jalgaon.
- In 1994 a well-furnished modern tissue culture lab was set up which have an amount production capacity of 6million.
- In 1994 they set up world-class food processing facilities for dehydration of onion and for production of fruit purees and concentrates. These plants are ISO 9001 & HACCP certified and meet International FDA status requirements. Two food-processing units are established in "Jain Food Park".
Vegetable dehydration unit process 120 tons/day and fruit pure unit process 230 tons of banana/ mango daily.

- PVC pipes and minor irrigation component manufacturing unit are established at Jain Plastic Park, which has a land area of 71 acres. At plastic Park HDP, LDP, LNDP, MDP, Polypropylene, Metal filters, Drip accessories, drippers, ventury assembling, Injector pipes, emitters etc., are being manufactured.

At Jalgaon, nobody eats banana

At Jalgaon, the “banana bowl” of our country, you cannot even see a single shop where banana bunches are displayed for sale. B’cos nobody at Jalgaon eats banana!! It was quiet surprising information to our team members. Ripened fruits from banana fields are removed by farmers and then throw away. Never they consume banana. We asked about this to several farmers. Answers of all were same “We wish to see banana as our product rather a food or fruit - so we simply sell it”.

Visit in Mumbai
At Mumbai we mainly visited and following institutes.

- APEDA Regional Office
- MAPMC (Mumbai Agricultural Marketing Committee.
- Mahanand, Goragano
- Air cargo at International Airport, Mumbai
- Vapour Heat Treatment Centre and Automatic Grading Line System

A. AGRI EXPORT ZONE ACTIVITIES IN MAHARASHTRA

The concept of AEZ can be summerised as “to produce what could be sold rather sell what is produced”. It visualises identification of interventions in a project mode. By making all central, state governments and local agencies to work under a single umbrella and comprehensively address all the issues relating to each stage of the entire value chain from farm to the ultimate consumer we can penetrate in to new markets in international scenario. Such a co-ordinated and committed work is an absolute requirement in AEZ. Let us look in to the achievements of Maharashtra in AEZ activities.

Our team visited regional office of APEDA in Mumbai on 25/6/2004 and met Mr. R.P.Gautham, Deputy General Manager and held a discussion with him about AEZ activities going on in Maharashtra. In Maharashtra AEZ activities are going ahead in a corporate manner and making unbelievable results. Six AEZs are sanctioned to the state and already started implementation. Following are the AEZs sanctioned.

- Grapes / Wines
- Alphona Mango
- Kesar mangoes
- Flowers
- Onions
- Pomegranates

1. Grapes and Wines

AEZ for grapes is being implemented in six districts explicitly Nasik, Pune, Sathara, Kolapur, Sholapur and Shangli. Under AEZ Maharashtra has successfully gone ahead to a large extend. They have established 90 pack houses of which 18 pack houses by Mahagrapes and other co-operatives and rest by private entrepreneurs with the assistance of APEDA. Six quality-testing labs were put up during last year to ensure the quality of the produce.

Traceability of the produce from the farmer to the end consumer is
important in global trading. To our surprise it is learnt that AEZ activities in grapes include establishment of such a system which provides traceability of the produce. Two “wine parks” were started functioning in Maharashtra to promote export of wine. At present they are sending 700 containers to UK and 800 containers to Middle east. Only 1-2 % of the export is through air and the rest is through ship. Mineral and Industrial Development Corporation (MIDCM) of Maharashtra is the nodal agency entrusted with the implementation of AEZ for grapes in the state.

2. Alfonso Mangoes

India is the largest producer of mango in the world producing about 12-13 million tons annually. It is one of the premium priced produces from India the global market. Mainly Alfonso variety is exported to Middle East and European countries. Annual export is about one million tons from Maharashtra. Under AEZ they have set up five pack houses in the state. Biggest pack house facility is established at Sihtagiri expending about Rs. 7 crores. A vapour Heat treatment System imported from Japan is installed at Vashi to kill the fruit flies. It costs around 5 crores. Fully automatic grading line was also set up under AEZ at Vashi.

To increase quality of the produce, they have obtained protocols for pre harvest operations, storage protocols and post harvest protocols from research institutions and transferred to farmers in precise manner. Maharashtra State Agricultural Marketing Board, Pune is the nodal agency for implementation of AEZ for mangoes in Maharashtra.

3. Kesar Mangoes

Separate AEZ was sanctioned for Kesar mangoes in Aurangabad area. Maharashtra State Agricultural Marketing Board, Pune, the nodal agency designated for implementation is co-coordinating efforts to achieve pre set export targets. They have already set up two modernised pack houses by two co-operatives namely Kissan Pajiwala co-operative society and Aurangabad Co-operative society.

4. Flowers

AEZ for flowers is being implemented in four districts, which includes Lonawala, Nasik, Kolapura and Sangli. 15-20 big export units have been established with the financial assistance of APEDA. MIDC (Mineral and Industrial Development Corporation of Maharashtra), the nodal agency has set up a modern floriculture Park at Pune with all facilities like affluent treatment, common nursery, processing and packaging facilities, green house facilities etc. In
Maharashtra state government has exempted cut flowers from power tariff and sales tax. By investing 23 crores Maharashtra Agriculture Development Corporation has established a well-furnished floriculture auction centre. Also the state government has put up a “state of art facilities” by investing 19 crores where electronic equipments are installed to check the products without human touch. By carrying out such a big task, Maharashtra has evolved as the largest exporter of flowers among other Indian states and its share comes to about 60% of the total export.

5. **Onions**

Even though onions are included under ARC (Allocation and Restriction Certificate), the regulation that restricts export, performance of Maharashtra is far ahead when compared to other states, only due to their committed work in this line. Two districts Nasik and Aurangabad the major onion grown areas are selected under AEZ. Maharashtra’s annual onion production is about 4.5 million tones. With the financial assistance of APEDA, Maharashtra Government has established storage facilities for 23000 metric tones to avoid storage loss. By investing Rs 15 crores, irradiation facility is installed at Ahamednagar. NRCO (National Research Centre for Onion), Nasik had already done impressive work on research about onion which helped to achieve export targets of the state. Maharashtra State Government establishes one large processing and grading centre at Indapur.

6. **Pomegranate**

AEZ for fresh Pomegranate was also sanctioned to Maharashtra as they have successfully been implementing other AEZ activities. Infrastructure for Pomegranate such as pack houses, grading and processing facilities, quality checking facilities etc, are now coming up. Research activities are entrusted with Ravri Agricultural University. Maharashtra State Agricultural Marketing Board, Pune is the nodal implementing agency.

While concluding Mr. R.P.Gautham stressed the point that you will get more and more global markets and can tap the opportunities put forward by the new era. But the absolute requirement is a big ‘C’ i.e. “Change”. Another important point to be noted that, out of the six AEZs implementing in Maharashtra, State Department of Agriculture has no role. 4 AEZs are implemented through Maharashtra State Agricultural Marketing Board and 2 AEZs by MIDC (Mineral and Industrial Development Corporation). Several times the DGM specially mentioned about the professional and remarkable performance of these two agencies. Having several “thoughts” in our
mind, we feared to raise any question at this juncture.

II. Mumbai Agricultural Produce Marketing Committee, Vashi, New Mumbai (MAPMC)

Think of an agricultural produce market, where 60000 labourers are engaged daily, 4000 trucks are coming everyday with agricultural produce from various parts of Maharashtra and other states and 5000 wholesale dealers are engaged in trading. Daily arrivals to the market are about 1190000 quintals of agricultural produce. Let us have an overview of MAPMC market at Vashi, Mumbai.

- The market was established in 1977.
- Objectives include regulation of marketing of agricultural and certain other produce and establishment, maintenance and management of markets etc.
- Area of operation includes Greater Mumbai, Thane Taluk and 30 villages in Urban Taluk.
- Commodities under regulation include onion, potato, fruits & vegetable, sugar, dry fruits, spices and condiments, food grains, pulses, edible oils and oil seeds.
- Total area owned by APMC is 72.50 ha of which 67.88 ha are developed and 4.62 ha are under development.
- As per Government policy all wholesale traders were shifted from Mumbai to this wholesale market at Vashi, New Mumbai. At the initial phase there were much resistance from traders against shifting. But now they were in the forefront for the development of the market.
- No. of declared wholesale market yard is five in which 3707 galas cum godowns are functioning. There are three auction halls and two warehouses. Five central facility buildings, two exporters' buildings, two fruit ripening chambers and one vapour heat treatment plant are installed for common use by traders and exporters on nominal rent basis. 1510 commercial officers and 15 commercial banks are functioning in the market.
- Infrastructure: The MAPMC complex at New Mumbai is spread over an area of 67 ha. There are five markets based here: Fruits, Vegetables, Food grains and Pulses, Sugar and Spices and Onion and Potato. The sixth market: Oil: is operated from a remote location. Daily arrival comes to around 119000 tons, which includes 25000 tons of Onion & Potato, 11000 tons of fruits, 16000 tons of vegetables, 27000 tons of Dry fruits & Spices and 40000 tons of fruit grains & pulses. The entire Market
Complex was constructed at a cost of 100 million dollars.

- Other amenities include one police station, restaurants, canteens, post offices, telecommunication centres, EPABX system, Farmers’ rest house, dispensary, suitable toilet block etc.

- Management: MAPMC is managed by an autonomous managing committee comprising of 25 members. The Chairman, elected every 5 years, is the head of the organisation and the operational matters are headed by the Secretary. At present the Chairman is Mr. Kumar Gosai, MLA and Secretary is Mr. Shrikant R. Jadhe.

- Market functioning:

  All the traders at MAPMC work on commission basis. They have a fixed ceiling on amount of commission that they can charge. This varies from commodity to commodity. The Commission is charged on the selling price of the farmers. The purchaser has to pay the levy of 0.8% to the commission agent. This includes a market fee of 0.75% and a maintenance fee of 0.05%. Both the receipts are then forwarded to the market yard office by the commission office. Quite a few traders have now got into the export act and mainly supply to their clients in Europe and Middle East. MAPMC is fully geared to support the exporters and ensure that Indian produce gets the recognition and the price that is due.

- Project cost:

  Project stated in 1977. Capital cost of the project was Rs.27500 lakhs. Rs.13000 lakhs were taken as borrowings, which were repaid completely with in a period of 10 years. Now the market is running in profit. As per the income and expenditure statement published by the market committee. The profit made during 2002-2003 was Rs.1384.85 lakhs.

Meeting with MAPMC Board Members

On 27-6-2004 Mr. Avinash Patel, the enthusiastic and dynamic Assistant Secretary of MAPMC who was in charge of coordinating our visit has organized a discussion with the Board Members of MAPMC and leading exporters / traders of Vashi Market. We were received a warm welcome by the Board Members and had a long discussion on the activities of MAPMC - thanks to Mr. Avinash Patel. Several Media reporters including National cable
TV persons from ETV came to report our visit. The MAPMC Board Members were very eager to know about the Kerala farmers. We see a big trade scope here, which requires further action at higher level.

III. Mother Dairy Food Processing Limited

Our team visited Mother Dairy Foods Processing Limited at NDDB Campus, Near Mahanand Dairy, Western Express Highway, Goregaon (East Mumbai).

Mother Dairy Foods India Ltd is one of the subsidiaries of NDDB and registered under Companies Act. It is learnt that Mother dairy plant handles more than 1.3 million litres of milk and undertakes its marketing operations through 636 owned milk shops and more than 6500 retail outlets. The fruit products are produced in fresh, frozen and processed form. In addition to export market “Safal” products are marketed through a chain of 263 owned fruit & vegetable shops and more than 20000 retail outlets in various parts of the country. Annual fruit processing capacity of the Company is 120000 MT. The fruit-processing unit at Mumbai is 100 percent export oriented.

Mainly Mango and Guava are processed here making their puree/concentrates and marketed under the trade name “Safal”. The processing capacity of the unit is 12 tons daily of fresh mango or guava. The unit is 100% export oriented supplying its products to many multinational clients like Cocoa cola, Pepsi etc.
IV AIR CARGO Visit

Visited Air Cargo centre attached to the Mumbai International Airport, which is modernized in all aspects. The air cargo centre is having 3000 sq.ft. of build up area, which manages amount one lakh, tones of agricultural produce annually. Around 150-250 tones is the daily quantity send by air from this cargo. The export items mainly include mangoes, grapes, pomegranates, flowers and vegetables like Okra, onion, green chillies, pumpkins, curry leaves, papaya etc.

Air cargo is having five ‘areas’.

1. Receiving area:

Where the agricultural produce from reefer trucks were received into cargo area, which is also refrigerated. While transferring the produces are not getting any contact with outside temperature-advantage of modern technology.

2. Pre-Stage area:

Where the producers were arranged for various ‘check-ups’.

3. Weighing area:

Where the producers are electronically weighed and recorded. The system is fully computerized.

4. Work Station:

Where the producers were scanned using X-ray machines and other quarantine checking were carried out. This system is also fully automatic and computerized.

5. Ball mat area:

Where after check up the produce which are ready for loading in flights are loaded in containers or can be kept in cold storages at 0 to -15°C. There are 9 cold storages in this area, which are also fully automatic. Each cold storage is having 2 tons capacity. Sensors are fixed at various points to check various parameters such as temperature, RH, fire etc., which will affect the quality of the produce.

Mr. Mahesh Aswari, Officer in charge of Air Cargo Unit explained about the activities to our team members.
Trade of coconut at Vashi Market

Fully Automatic grading system for fruits at Vashi Market

Fully Automatic grading system for fruits at Vashi Market - Another View
Our Suggestions

1. AEZ Implementation

In Kerala activities of Agri Export Zone for fruits and vegetables has started during 2003. At field level selection of farmers, technical trainings, cultivation of crops, establishing commercial farms etc are going on in all the selected districts. Components like expansion of area of included crops, productivity improvement, IPM practices etc were also carried out effectively. But when compared with the activities in Mumbai our team felt following drawbacks in our AEZ implementation.

- AEZ activities not yet come up to the level of project mode. Often it restraints by official delays and lack of convergence of programmes & agencies related.

- Action for providing infrastructure requirements is progressing at very low pace.

- Many vital decisions on matters such as deployment of staff deputed with the assignment of AEZ, providing amenities required by the officials to improve the work efficiency, construction of infrastructural facilities like pack houses, grading centres etc are pending for a very long period.

Our suggestions in this regard are as follows.

- The high-level co-ordination committee constituted for the purpose of bringing together all the related agencies, monitor the progress of implementation, rectify the defects and to take decisions in implementation at appropriate time should be given adequate powers to take decisions on matters which relates to AEZ activities without getting separate clearance from other department like Finance, Revenue etc.

- Convergence of activities of various agencies such as credit institutions, research institutions, departments, export agencies etc is to be ensured. Appropriate action plan for this purpose has to be chalked out.

- An executive committee comprising Principal Secretary to Agriculture, Finance, Revenue & Director of Agriculture should be constituted to clear the activities as and when required. The committee shall meet in every two month.

OR
The AEZ cell may be given autonomous status to implement the programme after it has been cleared by the State Government.

The AEZ cell should be delinked from the routine functions of the Department of Agriculture. At State Level the cell may be strengthened with experts from different disciplines.

In order to bring the exporters on line with our activities, transport incentives @ Rs.1/ KG may be sanctioned to the items taken from the AEZ farmers.

2. **EEC Market functioning**

Our EEC Market established in various districts in similar manner in which the market by MAPMC at Vashi functions. We put forth following suggestions in this regard.

- Marketing committees should be strengthened and to be made fully autonomous. There should be more participation of traders and farmers in the committee.
- The Secretary of the Market should be a Senior Official, (In Vashi the Market Secretary is an IAS Officer)
- Requirements should be made in the bye-laws / regulations / rules related to the functioning of Markets.
- Wholesale traders presently functioning in other markets should be negotiated to change their place of functioning to our EEC markets and utilize the facilities available there.
- Since most of our farmers are small and marginal, the farmer SHGs now functioning at various places may be persuaded to bring their produces to the EEC markets for auctioning. Transport assistance may be given to the farmers so as to persuade them to bring the produce to markets. A package programme to attract the wholesale traders to EEC may be worked out. The assistance package both to the traders and farmers may be continued for 1-2 years so that by that time functioning of the market will be stabilized.

Please see the suggestions on page 21 also.