

RESEARCH RECOMMENDATIONS OF 2016

Crop varieties developed by the University

1) Finger Millet – Dapoli-2

This is the first somaclonal variety of finger millet. It has given 11.17 per cent higher grain yield over existing raddish brown grained variety Dapoli-1. Iron and calcium content in this variety is 162.5 per cent and 9.55 higher over Dapoli-1, respectively. It is moderately resistant to blast, tolerant to aphids and *Spodoptera littura*. The grain colour is attractive. This variety requires 119 to 121 days for maturity. The average yield of this variety is 17.9 q/ha. It is released for cultivation in Konkan region of Maharashtra.

2) Bitter gourd – Konkan Karali

This variety is cross between Konkan Tara and Preethi developed by pedigree method. It has dark shiny, green long attractive and sharp pickled fruits. This is high yielding type having good keeping quality, suitable for heavy rainfall area, resistant to pest and diseases. This variety matures within 115 to 125 days and gives 18 to 20 t/ha yield. This variety is released for cultivation in Konkan region of the Maharashtra.

3) Cucumber – Konkan Kakadi

This is cross between CHC-2 and Sheetal developed by pedigree method. The fruits of this variety whitish green, tender having good keeping quality. It is high yielding suitable for heavy rainfall area, resistant to pest and diseases. It requires 110 to 120 days for maturity. The average yield is 26 to 28 t/ha. This variety is released for cultivation in Konkan region of Maharashtra.

4) Sponge gourd – Konkan Ghosali

This is cross between Selection-99 and Pusa Chikani developed by pedigree method. The fruits of this variety are medium long, tender dark green, attractive fruits having good keeping quality. It is high yielding, suitable for heavy rainfall area, resistant to pest and diseases. It takes 125 to 135 days for maturity and gives 18 to 20 t/ha yield. This variety is released for cultivation in Konkan region of Maharashtra.

Recommendations based on crop production technologies

A) Natural Resource Management

Soil Fertility and Crop Nutrition Management

1. It is recommended to apply fertilizer dose of 15 t FYM, 250 Kg N, 100 kg P₂O₅ and 50 Kg K₂O per hectare to hybrid cucumber during *Kharif* season for obtaining higher yield.

2. For getting higher yield and profit from turmeric, it is recommended to apply 25 t/ha FYM at the time of preparatory tillage and application of 100 kg N, 50 kg P₂O₅ and 150 Kg K₂O/ha 45 days after planting and application of 100 kg N/ha, 90 days after plating is recommended.
3. It is recommended to apply 20 t FYM/ha and fertilizer dose of 290 kg N, 50 kg P₂O₅ and 100 kg K₂O per hectare for obtaining higher fruit yield in hybrid watermelon.
4. It is recommended to apply fertilizers dose of N, P₂O₅ and K₂O @ 200 : 50 : 50 kg/ha, respectively with 50 cm × 20 cm spacing to white onion, variety Alibag local during rabi season for getting maximum seed yield and net return. The full dose of P and K be applied at the time of planting and N be applied in three equal splits i.e. at the time of planting, 30 and 60 days after planting.
5. In North Konkan Coastal soils having salinity up to 8.5 dS m⁻¹, the rice variety Panvel-3 be grown by direct seeding method before on set of monsoon with the application of 7.5 t/ha FYM and recommended dose of fertilizer (100 : 50 : 50 kg/ha N : P₂O₅ : K₂O) to get higher yield and economic returns.
6. It is recommended to apply 25 : 60 : 40 kg/ha N : P₂O₅ : K₂O and FYM @ 5t ha⁻¹ along with seed inoculation of Rhizobium and PSB @ 25 g kg⁻¹ of seed for obtaining maximum yield and profit of rabi cowpea in lateritic soil of Konkan region.

Dryland Crops

1. To obtain higher yield and economic returns from Kharif groundnut, it is recommended to grow the crop on Broad Bed and Furrow (BBF) at 80 × 20 cm using 44 kg ha⁻¹ polythene mulch having 7 microns thickness in lateritic soils of South Konkan Coastal region.

Irrigated Crops

1. It is recommended to grow banana crop (Cv. Safed Velchi) in lateritic soil of Konkan region, with micro jet irrigation and be irrigated on alternate day 13 to 15 lit/plant during October to January and 18 to 21 lit/plant during February to onset of monsoon.
2. In lateritic soils of Konkan region, it is recommended to grow sweet corn during rabi season under drip irrigation with application of soil test based major fertilizers along with micro nutrients viz., Cu, Zn, B and Mn and soil amelioration with 50 per cent lime requirement (13.8 t/ha) for obtaining higher yield and net returns.

Weed Management

1. In Konkan region, for effective weed control and higher returns from kharif drilled rice pre-emergence application of pendimethalin (30 EC) @ 1.00 kg/ha followed by one hand weeding at 25 DAS is recommended.
2. In Konkan region, for obtaining higher yield and net returns and effective weed control in rice groundnut cropping system, incorporation of green manure crop dhaincha (*Sesbania rostrata*) at the time of puddling and spraying of herbicide pretilachlor (50 EC) @ 0.75 kg/ha 3 to 7 DAT to kharif rice and pendimethalin (30 EC) @ 1.0 kg/ha 3 DAS to groundnut is recommended.

Integrated Farming System

1. In South Konkan Coastal zone of Maharashtra, it is recommended to follow Rice- Sweet corn, and Rice- Brinjal cropping system for obtaining higher yield and economic returns.
2. For obtaining higher yield and economic returns from rabi groundnut – kharif rice cropping system, it is recommended to apply 25 kg N, 75 kg P₂O₅/ha to groundnut and 75 per cent recommended dose of fertilizer (75 kg N + 37.5 kg P₂O₅ + 37.5 kg K₂O/ha) to rice crop under South Konkan coastal conditions.

Forestry and Agroforestry

1. It is recommended that in well drained lateritic soils of Konkan region, black gram crop be planted as an intercrop in 7×7 m cashew plantation during first five years of juvenile period.

B) Horticulture

1. For enhancing yield in grafted Jamun plants, deep cut on 50 per cent tertiary branches per year for every sub branch in the month of October is recommended.
2. It is recommended to prepare the mango epicotyl grafts in 10” × 14” size 200 gauge uv stabilized black colour polybag for better vegetative as well as root growth.
3. The rejuvenation technology developed by the University to improve yield of more than 50 years old and senile orchards of Alphonso mango, i.e. pruning of such plants at 10 to 12 ft height (i.e. tertiary branches) from ground level followed by periodical thinning of new sprouts and adoption of other scientific care is recommended.
4. For obtaining spotless fruit production of Alphonso mango, the news paper bagging (25 × 20 cm size) at marble stage is recommended.
5. In North Konkan region of Maharashtra for obtaining higher onion bulb yield and net return during rabi season transplanting of onion seedling cv. Alibag white

(local) at 10 × 15 cm spacing during second to third week of December is recommended.

6. Planting of elephant foot yam *cv.* Gajendra is recommended for getting higher production and net returns under Konkan region during kharif season.
7. It is recommended to cultivate “Bengalori” variety of Arabian Jasmine (*Jasminum Sambac* L.) for higher flower yield and net returns in North Konkan region.
8. It is recommended to use the pro-tray seedlings prepared from bud on finger rhizome for cultivation of turmeric for getting higher yield and returns in Konkan region.
9. In Konkan region planting of elephant foot yam or ginger or turmeric as intercrop in arecanut orchards is recommended for getting higher yield and net returns.
10. In North Konkan region for obtaining higher yield from old and dense orchards of sapota, heading back of branches from all sides at 1.0 m in the month of October is recommended.

C) Animal and Fisheries Science

1. For obtaining better growth and economic returns from broilers, it is recommended to mix five per cent Azolla powder in the feed of the broilers.
2. Rearing of Giriraja poultry breed is recommended for better growth and economic returns in Konkan region.
3. It is recommended to supplement one per cent ginger powder in the feed of broiler for reducing cholesterol and obtaining better growth and economic returns.
4. It is recommended that the water pH levels between 7.0 to 7.5 and hardness of water 95-115 mg/lit. be kept for egg hatching of Auratus, (*Melanochronis auratus*).
5. It is recommended that the water pH levels between 7.0 to 7.5 and total hardness of 85 mg/lit. be kept for egg hatching of Oscar, (*Astronotus ocellatus*).
6. It is recommended to inject the extract of brain, eyes and mandible @ 0.2 ml/kg of body weight of mudcrab, *Scylla tranquibarica* brooder at an interval of 2nd, 5th and 10th day for obtaining early maturation (50 days) in female by keeping the environmental parameter such as salinity 32 ppt, temperature 35^o C and photoperiod 12 hrs.
7. It is recommended to inject synthetic hormone containing Salmon Gonadotropin Releasing Hormone Analogue and Domperidone intramuscularly @ 0.2 ml/kg and 0.4 ml/kg to matured male and female fish, respectively for successful induced breeding of Khawala fish (*Puntius sarana*).

8. It is recommended to organize training programme for the shrimp farmers to acquaint them with the concepts of selection of proper site, stock the farm with certified seed, adopt proper feed and feeding management practices for sell the produce at highest price as per the market price fluctuations.
9. It is recommended that the oyster pickle prepared by using 2 per cent coconut vinegar along with the standardized ingredients and packed in PET bottles can be stored at room temperature in acceptable condition for a period of six months.
10. The solted Ribbon and Dhoma fishes can be dried in Cabinet Drier (50⁰ C constant temperature) for 29 and 33 hrs, respectively or in Solar Tunnel Drier (32 to 49⁰ C temperature) for 32 and 33 hrs, respectively and can be kept in good condition by packing in Low Density Polythene or High Density Polythene bags for five months.
11. It is recommended to dry the salted Indian mackerel fishes in the mechanical dryer at 50⁰ C temperatures for 16 hrs. or in the solar tunnel dryer for 3 days.

D) Basic Sciences, Food Science and Technology

Post Harvest Management

1. It is recommended that for preparation of powder from cashew apple fruit and pomace, cashew apple slices are dried (hot air drying) at 50⁰ C for 27 hours.
2. A process of drying pineapple cubes of size 1 cm, dried by osmo-convective drying method at 50⁰ B sugar concentration and drying at 60⁰ C for 680 minutes is recommended.
3. The tuber crop based extrudates prepared with flour composition of arrowroot, lesser yam and potato i.e. 10 : 40 : 50 per cent be extruded at 130⁰ C temperature and screw speed 390 rpm. and can be stored for 45 days in good condition.

Seed Technology

1. In Konkan region for obtaining more than 80 per cent seed germination and storing it up to 15 months, it is recommended that the paddy seed be stored in polyline HDPE bags.
2. In Konkan region for obtaining more than 75 per cent seed germination and storing the seed up to 2 years, the cowpea and dolichos bean seed be stored in aluminium foil bags.

E) Agril. Engineering

Farm Machinery and Power

1. It is recommended to use combination of medical gloves (inside) and cotton gloves (outside) during fish dressing operation for safety and better capacity

F) Social Sciences

Agril. Economics

1. Low level of technologies adoption (56.20 %) released by the University resulted in the yield gap of 40.84 per cent that to the demonstration yield. The major constraints mentioned for the gap were lower prices by traders (90 %), non availability of paclobutrazol (87 %), chemical fertilizers (54 %) and insecticides & pesticides (55 %). For releasing maximum returns from mango production it is recommended that :
 - a. Local institutions should provide place in consuming areas in city for direct sale of mangoes.
 - b. The Department of Agriculture should plan for increasing availability of paclobutrazol and chemical fertilizers at reasonable rates in time.
 - c. The Department of Agriculture should plan for availability of plant protection chemicals in time for control of diseases and pest.
2. The cultivation of Jasmine with a B:C ratio of 3.11 is highly remunerative. It is recommended to motivate the farmers for jasmine cultivation for generating self employment and to increase the income.
3. Fish farming in farm ponds is profitable enterprise (B:C ratio 2.40). It is therefore recommended that farmers in Raigad district be encouraged for fish farming in farm ponds at household level for gainful employment and income generation throughout the year.
4. In Konkan region expenditure on human labour account for 64 per cent of cost of production of rice. To minimize the per unit cost of production of rice it is recommended to give impetus to farm mechanization.

Extension Education

1. Based on the evaluation of trainees of mango rejuvenation technology trained under Indo-Israel project, it is recommended that the Government of Maharashtra should implement mango rejuvenation technology project for a long period and further the Government should subsidize machineries required for rejuvenation of mango orchard and ensure their availability at tahsil level.
2. Based on the Impact of extension education activities of College Development Block upon its client system it is recommended that the College Development Block be strengthened with required infrastructure, man power and financial arrangement by the University with Government support.
3. Based on the Impact Assessment of integrated crop management technologies transferred under RKVY-Transfer of Technology project, it is recommended that Government of Maharashtra should sanction special project on transfer of

technology on similar line of RKVY- Transfer of Technology project to the Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth to increase the adoption of technologies developed by the University in the Konkan region.

4. Based on the study pertaining to the Entrepreneurial behaviour of vegetable growers from Raigad district, it is recommended to give the Entrepreneurial Development Training to the vegetable growers from Raigad district for increasing their entrepreneurial characteristics and they should be motivated for group vegetable farming.