

Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth

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Research Recommendations - 2013

Crop Varieties developed by the University

1) Coriander DPL-COR-1 (Kasturi)

This variety is developed by selection method. It is spreading type variety of coriander having high aroma suitable for green leaves purpose. The leaves are broad, dark green with reddish tinged petiole having average 39 leaves per plant. Fresh weight of plant is 8.67 g. High leafy shoot ratio (3.7:1). It has high yield potential (106.42 g/ha). It has good shelf life (3 to 4 days at ambient temperature). It is free from pest and diseases (up to 50 days). It is suitable for cultivation in rabi and summer season in Konkan region.

B) Farm Equipments / Implements released

1) Improved Vaibhav Sickle

Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth has developed and released improved Vaibhav Sickle which is recommended for harvesting of paddy. The blade of improved Vaibhav Sickle is developed considering the dimensional requirements of friction cutting and shear cutting. The cutting surface length and chord length of blade are 225 mm and 210 mm, respectively. The handle of improved Vaibhav Sickle was developed considering the anthropometric data of women workers. The handle length and diameter are 136 mm & 32 mm, respectively. The yield capacity of improved Vaibhav Sickle is 112 m²/h, which was 15.5 percent higher than that of Vaibhav Sickle (97 m²/h). The time required for harvesting one hectare paddy by improved Vaibhav Sickle was 83 hr. The women workers can work continuously with this sickle without adequate rest pause. The Centre of mass for the improved Vaibhav Sickle is located very close to the line of action. Therefore, there is no lateral twisting to the wrist and the sickle is balanced.

C) Other Recommendations

Natural Resource Management

1. For obtaining maximum productivity and profit from *rabi*-hot weather groundnut in lateritic soil conditions of *Konkan* it is recommended to apply 100% RDF (25 Kg N + 50 Kg P₂O₅) at the time of sowing + 50% RDF (12.5 Kg N + 25 Kg P₂O₅) as top dressing at 30 days after sowing.
2. In North Coastal Zone of the Konkan to reduce the cracking of arecanut, it is recommended to apply boron @ 4 kg ha⁻¹ (3.00 g per palm) through the soil application with recommended dose of fertilizer

3. It is recommended to grow groundnut with soil application of 20 kg. ZnSO₄ ha⁻¹ alongwith recommended dose of fertilizer (25 kg N + 50 kg P₂O₅) for obtaining maximum yield with higher net returns during Kharif season under South Konkan condition
4. For obtaining maximum productivity and profit from banana variety '*Grand naine*', it is recommended to irrigate it by microjet method with 13 to 15 litre per tree in October – January and 19 to 22.6 litres water from February to till start of monsoon shower (Total 135.3 ha cm.) at an interval of one day.
5. It is recommended to grow sweet corn crop (Variety - Sugar 75) in lateritic soil of Konkan region under inline drip irrigation system and irrigation should be scheduled on alternate day at 7.4 to 19.0 lit/plant from January to April (total water 46.3 ha-cm) with 80% of recommended dose RDF (160:48:48 kg/ha, N:P:K) through WSF to get higher production, better quality and benefit.
6. In *Konkan* region for obtaining higher yield and net returns, it is recommended to follow conventional tillage to direct seeded *Kharif* rice and zero tillage be adopted for succeeding *rabi* lablab bean in combination with two hand weedings to each crop at 20 & 40 DAS. If hand weeding is not possible, pre-emergence application of oxadiargyl @ 0.12 kg/ha for both the crops is recommended.
7. For effective and profitable weed control in *Rabi-Summer* groundnut under *south* Konkan conditions, pre-emergence application of *Pendimethalin* @ 1.0 kg ha⁻¹ combined with one hand weeding at 30-35 days after sowing is recommended. If there is labour scarcity for hand weeding, pre-emergence application of *Pendimethalin* @ 1.0 kg ha⁻¹ be combined with post-emergence application of either *Quizalofop ethyl* @ 50 g ha⁻¹ or *Imazethapyr* @ 75 g ha⁻¹.
8. Manga Bamboo (*Dendrocalamus stocksii*) be planted at 10×10 m spacing and intercropped with finger millet for attaining early and higher yield of bamboo in the uplands of Konkan region.

Horticulture

1. It is recommended to prepare wine from mature green (raw) Alphonso mango fruits by adopting technology developed by Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli.
2. Soil application of Paclobutrazol @ 2.5 ml/m. of canopy on 15th May (if irrigation is available) or 15th June is recommended for advancement of mango flowering fruiting by 2-2½ month in rocky areas along the west cost of Konkan region in Maharashtra.
3. It is recommended to grow spider lilly or banana as intercrops in full grown mango orchard or vermicomposting in mango orchard planted at 10 x 10m for obtaining higher yield and net returns.

4. For reducing the tannin content of cashew apple juice, it is recommended to store it at 12⁰ C temperature for 24 hours, before preparation of cashewapple wine by using fermenter.
5. On the basis of chemical composition, sensory evaluation of juice and wine and cost of production of wine it is recommended that the pasteurised cashew apple juice treated with 250 ppm SO₂ (0.43 g. potassium metabisulphite) can be used for preparation of standard quality wine upto its 3 months storage at 12⁰C ± 2.
6. Soil application of Paclobutrazol 3.75 g.a.i. per tree during August is recommended for increasing yield and hastening maturity of Jackfruit.
7. The variety 'Utkal Ragini' of chilli having dark red colour is be recommended for cultivation in Konkan region of Maharashtra during *rabi* season to get higher dry chilli yield.
8. Wine can be prepared from ripe Jamun fruits by using technology developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli
9. In Aerial yam (*Dioscorea bulbifera*), for higher production of marketable yield, retaining 10 bulbs and thereafter pruning of vine is recommended.

Animal & Fisheries Science

1. A ratio of 7 : 3 (wheat flour : shrimp) is recommended for the preparation of ready-to-cook shrimp noodles.
2. It is recommended that the Clam pickle be prepared using fried meat (in oil for 10 minutes) and other standardized ingredients (40% meat,5% salt, 20% edible oil, 4% chilly powder,14% garlic paste, 0.5% turmeric,0.4%,.Asafotida, 0.5% pepper. 0.2% sodium benzoate,10.5% ginger paste, 2% cumin, 2.5% Pickle masala & 2%, Lemon extract), packed in PET food grade bottles can be stored at room temperature in acceptable condition for a period of six months .
3. A ratio of 85 : 15 (rice flour : fresh cooked fish) is recommended for the preparation of Ready-to- fry-n-eat fish noodles using screw press.
4. It is recommended to rear gold fish *Carassium auratus* @ 250 numbers per cubic meter in plastic lining pond (size 10.0 × 2.0 × 1.0 meter) and fed four times in a day with commercial shrimp feed @ 8% of body weight for 60 days to obtain the better growth and survival

Plant Protection

1. For control of mango hoppers the spray of Lambda Cyhalothrin 5EC (0.003%) or Triazophos 35EC (0.04%) or Deltamethrin 1EC + Triazophos 35EC (0.036%) or Chlorpyriphos 50% EC + Cypermethrin 5% EC (0055%) or Profenophos 40EC (0.05%) or Profenophos 40 EC+ Cypermethrin 4 EC (0.066%) are recommended.
2. For management of mango stem borer, detect the infested tree by the presence of fresh frass. Drill the hole with the help of 1 cm hand drill up to 10 cm in the

existing hole made by stem borer and pour the mixture of 20EC Chlorpyrifos@ 10 ml + 20 ml Kerosene or 76 EC DDVP@ 10ml + 20 ml Kerosene in the hole with the help of plastic pipe and seal the hole with mud

3. It is recommended to apply Carbofuran 3G @16.5 kg/ha for control of rice caseworm, when the pest reaches ETL, and second application should be given fifteen days after first application, if necessary.
4. It is recommended to apply *Beauveria bassiana* 1.5% W.P. @ 6.75 Kg/ha in small furrow for the management of sweet potato weevil
5. Blue light trap is recommended for monitoring population of bud borer and seed borer in sapota orchard
6. Three sprays of Carbendazim (0.1%), or Mancozeb (0.2%) or Bordeaux mixture (1.0 %) at one month interval are recommended for effective management of leaf blight disease of cashew. The first spray be given before the onset of monsoon.
7. For effective management of pre and post emergence damping off and getting higher yield and net returns from dolichos bean, pre sowing seed treatment with *Tricoderma* formulation@ 5 g/ Kg + Carbendazim @ 1 g / Kg is recommended

Agricultural Engineering

Soil and Water Conservation Engineering

1. An average effective life of staggered contour trenches of 4 m × 0.6 m × 0.3m cross section at 4 m HI, is 10 years in non arable land having 15-20 % slope in South Konkan Region.

Irrigation and Drainage Engineering

1. It is recommended that, in lateritic soil of Konkan region, the brinjal crop Variety- CHES – 309 (*Swarna Pratibha*) should be grown under drip irrigation system at 175cm-50cm × 50cm and irrigation should be scheduled on alternate day at 2.70 to 4.0 lit/plant (total water 39 ha-cm) with recommended dose RDF (150:50:50 kg/ha, N:P:K) through water soluble fertilizer to get maximum production and benefit.

Agril. Processing Engineering

1. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for making of flour Kulith (horse gram).
2. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for dehulling of Kokum seed
3. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developing baking process for Finger millet based muffins rich in calcium, iron and fibre prepared from flour of 20% Finer millet and 80% maida, mixed by planetary mixer at 240 rpm speed and baked at 190⁰ C is recommended.

4. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process of drying of Kokum rind using tray dryer at 60⁰ C up to 20 h or in solar dryer up to 31 hr. and packed in Plastic boxes and stored at room temperature is recommended for preservation of Kokum rind to 6 months for better retention of acidity, red colour and calorific value.
5. Calcium and Iron rich Finger Millet based Extrudates, suitable for growing children can be prepared as per the procedure developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli.
6. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for preparation of Kokum Agal. Kokum Agal can be packed in glass bottle and stored upto 12 months in good condition.
7. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for making of Kokum Sarbat Mixes. The Kokum Sarbat Mixes can be packed in Met Pet polypack and can be stored upto 9 months in good condition.
8. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for making kokum Solkadhi Mixes. The Kokum Solkadhi Mixes can be packed in Met Pet Polypack and can be stored upto 6 months in good condition.
9. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended to extract good oil from kokum seed by steaming the 10% (db) M.C. of kokum seed for 20 min duration and extracting the oil using screw press. Extracted oil (butter) can be preserved in good condition by packing the oil in rigid plastic container and storing at refrigerated condition
10. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process of Osmo-Tray drying of ripe jackfruit bulbs is recommended. The dried bulb can be packed in met pet poly pack and stored upto 9 month in good condition.
11. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for making Jackfruit bulbs powder. Jackfruit bulb powder can be packed in Met Pet Polypack and stored up to 12 months in good condition.
12. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed process is recommended for preparation of Kokum Amsul. Kokum Amsul can be packed in plastic boxes and can be stored upto 12 months in good condition.

Farm Structure

1. In Konkan region, for increased milk production and comfort of cows rubber mats of size 1524 mm (L), 1060 mm (W) and 15 mm (T) are recommended.

Electrical and Other Energy Sources Engineering

1. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth designed and developed Open top Gasifier cum stove is recommended for cooking application for saving the wood fuel and cooking time over biomass based traditional cooking system. This biomass gasifier offers high thermal efficiency (20.89%), good process controllability economic viability and environmental acceptance over traditional method of cooking. The fuel consumption, cooking time and cost of fuel in this gasifier reduced by 1680 kg, 70 hrs and Rs. 5040/- per year respectively. The cost of open top biomass gasifier is Rs. 3500/- with pay back period of 8.3 months.
2. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed W-shape three channels solar still erected on ground using 200 micron UV stabilizer clear poly ethylene film is recommended for production of 2 lit./ day distilled water in Konkan region. Double slope single basin (DSSB) low cost solar still is fabricated using iron frame and 200 micron UV stabilized clear poly ethylene film. The chemical properties of the distilled water of the solar still are similar to conventional distilled water. The energy utilization efficiency of this solar still is 10.9% and cost of is Rs. 1848/- with BCR 2.56 for first year. The pay back period is of 4 month 6 days.

Social Sciences

Agril. Economics

1. Application of paclobutrazol does per tree along with manures, fertilizers and plant protection chemicals at recommended levels observed to increase mango production one and half time realizing two times more net returns. Alphonso mango growers should apply paclobutrazol does as per canopy of tree with recommended levels of inputs.
2. The technology of drum seeder in rice cultivation must be popularized to overcome the scarcity of labour, increasing wage rate and for use of weedicide for reducing cost of cultivation (9.24%), by conducting the larger scale demonstrations of drum seeder (direct seeded method) and through audio-visual aids by the Department of Agriculture, NGOs and KVKs.
3. Farmers need to be encouraged for Kokum plantation to meet shortage of fruits for processing. Kokum products have high added value and hence, processor in rural area be trained by extension agencies to form groups or association to sale their products by developing a brand name (logo).
4. Analysis of transition probability matrix revealed that about 12.7 and 3.0 per cent its previous area from desirable and agricultural sector shifted to non-agricultural uses respectively. The depletion in area under desirable and agricultural sector is a matter of concern. In view of this, State Government should advise policy for

Konkan region to regulate conversion of agricultural and desirable land to non-agricultural uses.

5. Due to medium and high adoption of technologies in Nagli cultivation, productivity was increased by 8.74% and 29.93% while per quintal production cost was decreased by 3.12% and 9.91%, respectively. In order to achieve higher production of Nagli, farmers need to adopt recommended technologies viz., HYV seed, fertilizers in proper dose and avoid use of potash through mix fertilizers. Extension agencies should educate the farmers through demonstrations and audio-visual aids.

Extension education

1. It is recommended that success stories showing the impact of recommended mango technologies on the farmers should be published by University to motivate the other farmers as well as to provide timely information on improved mango technology, effective extension education programmes like cluster demonstrations, information through ICT tools, audio-visual aids be implemented by the University and Department of Agriculture.
2. It is recommended that the extension agencies should organize the plant protection campaign in the Sapota growing area of the Thane district along with block demonstrations of rejuvenation technique.
3. It is recommended that Alphonso mango growers should purchase paclobutrazol from authorized dealers and should apply paclobutrazol dose to adopt paclobutrazol dose with recommended levels of inputs. Extension agencies should conduct block demonstrations to show the impact of recommended technology of paclobutrazol application and also need to train the mango growers in use of this technology.
4. It is recommended that frontline demonstrations on oilseeds should be organized by the extension agencies extensively in cluster approach to increase the productivity as well as area under oilseeds.