Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth

Dapoli 415 712, Dist. Ratnagiri

RESEARCH RECOMMENDATIONS OF 2020

Crop Varieties developed by the University:

1) Oil palm "Godavari Ratna":

It is recommended to release the high yielding oil palm hybrid "Godavari Ratna" for Konkan and western ghat region of Maharashtra under high rainfall with assured irrigated condition.

2) Finger millet - Dapoli-3

Dapoli-3, high yielding mid-late duration variety of Finger millet is recommended for release in Konkan region of Maharashtra.

Farm Equipments / Implements released:

1) Power operated cashew nut grader:

Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed rectangular screen type power operated cashew nut grader is recommended for grading of raw cashew nuts.

Salient features:

1. Rectangular screen type reciprocating motion cashew nut grader. Grading of raw cashew nut is done in three graders as Grade I-(Large size nuts)- >25mm, Grade II- (Medium size nuts)- 22mm to 25mm, Grade III-(Small size nuts)- < 22 mm).
2. Operated by single phase 0.25 hp electric motor.

3. Grading capacity is 200kg per hour.
4. Total cost of the cashew nut grader is Rs. 14,430/-
5. This grader has adjustment for stroke length, stroke frequency and sieve slope.

2) Finger millet thresher cum pearler :

It is recommended to release the threshing and pearling machine developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth for threshing and pearling of finger millet

Salient features:

1. Threshing and pearling of finger millet are carried out in single pass.
2. Required 2 hp single phase electric motor.
3. Machine has threshing/pearling capacity 36 kg/h; threshing efficiency 99 % and broken grain 0.1 %.
4. As compared to traditional method for threshing/pearling of finger millet, the cost saving is by 72 %.
5. With the help of wheel, machine can easily transported from one place to another.

3) Fish descaling knife:

It is recommended to use Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed knife with specific type of groove from tip to the handle of knife at other side of the sharpen edge for easy and superior descaling of fishes with efficacy.

Recommendations Based on Crop Production Technologies:

A) Natural Resource Management:

Soil Fertility and Plant Nutrition Management-

1. It is recommended that, the critical limit of silica found to be 43.43 kg ha^{-1} in lateritic soil and 2.6 per cent in rice crop.

2. It is recommended to apply RDF along with $ZnSO_4$ @ 15 kg ha^{-1} through soil or zinc fortified Konkan Annapurna Briquetted (KAB) (34:14:6:1.23% $N:P_2O_5:K_2O$:Zn) to rice at the time of transplanting for getting higher yield and quality in medium black soil of Konkan region.

3. It is recommended to grow elephant foot yam-okra crops in sequence under lateritic soils of Konkan region with drip irrigation system and irrigation should be scheduled on alternate day at 100% PE (Total water applied to elephant foot yam 117.54 mm and okra crop 224.17 mm) and 125% RDF through straight fertilizers for obtaining higher system production and economic returns.

4. It is recommended to apply 170 kg ha^{-1} Konkan Annapurna Briquette + 5 ton FYM (25% RDN) to *Kharif* rice and 75% RDF (150:45:45 kg NPK ha^{-1}) to rabi sweet corn for obtaining optimum yield and economic returns in rice-sweet corn cropping system in South Konkan Coastal Zone.

5. It is recommended that, to get higher yield and economic returns from rice based cropping systems, ‘ Rice-bottle gourd’ cropping system be grown under North Konkan Coastal Region.

6. It is recommended to cultivate *brihat-panchmula* (Tetu, Padal, Agnimanth, Shivan, Bel) at high density spacing of 60 x 30 cm to obtain higher root yield and net return by harvesting at the age of 18 months under Konkan region.

7. Application of *Terminalia tomentosa* (Ain) litter @ 5 t ha^{-1} in the month of May is recommended for the development of soil nutrients status and microbial community in lateritic soils of Konkan region

B) Horticulture:

1. Planting of Banana as intercrop in Arecanut plantation in Konkan region of Maharashtra is recommended for getting high production and net profit.

C) Animal and Fisheries Sciences:

Fisheries Science

1. It is recommended to plant one-year nursery grown Rhizophoramucronata and Avicennia marina mangrove saplings during June to September months after three months in situacclimatization for maximum survival.

2. It is recommended to maintain the fishing pressure of the cuttle fish, Sepiellaninermis at the current exploitation ratio of 0.28 and 0.34 respectively for Ratnagiri and Mumvai coasts for obtaining sustainable yield of the species

D) Post Harvest Management

1. It is recommended to prepare Alphonso mango instant RTS mix from raw Alphonso mango powder (*Amchur*) by the method developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli. The prepared raw Alphonso mango instant RTS mix could be stored at ambient temperature in good condition in laminated aluminum foil up to six months. The process for tenderizing and preserving *Chevon* up to 6 days by using *Betel* leaf extract in the proportion of 1:1 for 30 min at 10-15^{0}C temperature is recommended.

2. It is recommended to prepare the jamun-aonla blended nectar having 3 months of acceptability by blending and aonla juice as per the process developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli.

3. It is recommended to use Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth developed technology for preparation of Ready-to eat fish spread product from low cost fish Dhoma with natural colour have shelf life upto 21 days in refrigerated display unit at 0 to 4^{0}C.

4. It is recommended by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli to use heat treated (80^0 C for 30 min.) semi ground or fine crude salt for curing, followed by drying of Indian mackerel to get shelf life up to 13 months at ambient temperature.

5. It is recommended to prepare most acceptable quality probiotic ice-cream, as per method developed Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, by incorporation of Spirulina (*Spirulinaplatensis*) powder @ 0.3% of ice-cream mis (w/w) and by using culture of *Lactobacillus casei* @ 12.5% of ice-cream mix (w/w).

6. It is recommended to prepare most acceptable quality misti dahi having shelf life of 3 days at atmospheric temperature and 18 days at refrigeration temperature, as per method developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, using 3% normal standard inoculums culture and by addition of saffron-cardamom extract @ 6% and sugar @ 8% of original milk (w/w).

E) Plant Protection

1. For coast effective management of bacterial leaf blight of rice, application of recommended dose f fertilizer (RDF) and two sprays of *Pseudomona fluorescens* @ 200 ml per 10 litre water at 15 days interval (30 & 45 DAT) is recommended.

2. For the management of coconut eriophyid mite and increasing of nuts yield with health of the palm the following INM with IPM package is recommended.

Month	**Management Practices to be followed**
May	FYM @ 10 kg/palm + Vermi-compost @ 10 kg/palm.
June	Recommended NPK dose – 750 g Urea, 3 kg S.S.P. and 650 g Potash, Neem cake @ 5 kg/palm. Green manuring with cowpea @ 50 g/palm in coconut basin. Coconut husk incorporation @ 10kg/palm and Micronutrient application @ 500g/palm.
September	FYM @ 10 kg/palm + Vermi-compost @10 kg/palm.
October	Recommended 750g Urea and 650g Potash. Micronutrient application @ 500g/palm. Kera probio (*Bacillus megaterium)* @ 100 g/palm in well irrigated garden.
December	Spraying with palm oil @ 200 ml+sulphur 80% WP @ 5g + soap powder 2.5g in 800 ml of water on nuts.
February	Recommended 750 g Urea and 650 Potash.
March	Rood feeding with Fenpyroximate 5 % EC @ 10 ml + 20 ml water.

3. For the management of cashew thrips and tea mosquito bug it is recommended to spray (0.01%) Acetamiprid 20 SP @ 5 g/10 lit of water, at the place of third spray (at pea nut stage) of the university schedule

F) Agricultural Engineering –

1. It is recommended to grow green capsicum in lateritic soils of Konkan region with 1.0 ETc irrigation level (Inline drip 4LPh, 50 cm spacing) with silver mulching and 120 percent RD of 280:30:415 NPK kg/ha for getting maximum returns.

G) Social Sciences:

1. Organic cashew production is economically viable venture (B:C ratio 1:1:93). Hence it is recommended to have a separate agency for registration of organic cashew orchard, purchase of organic cashew nut at remunerative price and its market branding.
2. Jamun tree pose problem in harvesting with loss to the extent of 19.06% hence it is recommended to develop harvesting implement.
3. Harvesting of bamboo by using koyti cause damage to bamboo. Hence it is recommended to develop suitable device for harvesting of bamboo.
4. The study revealed that "Field Crops + Horticulture +Livestock" and "Field Crops + Horticulture + Livestock + Forestry" IFS modules are pre-dominantly adopted by the progressive farmers. Both IFS modules has impacted positively by two fold increase in gross return, while 50-60% increase was observed in employment generation. Most of the progressive farmers has adopted promising technologies viz. crop diversification, resource conservation technologies improved varieties & breeds and also introduced agro-forestry in their IFS modules. Therefore, it is recommended that State Extension System should organize demonstrations on different Modules of Integrated Farming System (IFS) in Konkan Region to mobilize the farmers for doubling their income. Further, efforts should taken for crop diversification, promotion of resource conservation technologies, improved varieties and breeds, introducing agro-forestry in their IFS modules.
5. On an average weekly demand for vegetables in Dapoli is 9700 kg. Out of this 92.78 per cent demand is met from outside supply and 07.22 per cent from local supply. Considering the gap between demand for and supply of local vegetables, it is recommended that farmers from Dapoli tehsil should be motivated to cultivate variety of vegetables as per the demand in the market to augment their income.
6. Graft survival of mango and cashew increased by 28.85% and 41.5% respectively and cultivated land utilization index increased from 0.25 to 0.45 as well as saved amount Rs. 1,30,334/- per hectare than conventional method after implementation of "Konkan Jalkund" technology in study area of North Konkan region (Palghar district) and fetched additional benefit Rs. 1,29,324/- per hectare by cultivating jasmine as intercrop in mango and cashew fields by using stored water in "Jalkund" and technology was found economically viable, thus it is recommended to cultivate jasmine as intercrop in mango and cashew fields by using Konkan Jalkund technology.

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