

**Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth**  
**Dapoli, Dist. Ratnagiri**

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**Research Recommendations of 2010**

**Development and release of crop varieties**

**A) Field crops :**

**a) Rice**

**1. Sahyadri – 5 (RTNRH -10) rice hybrid**

The rice hybrid Sahyadri-5 (RTN 13A × RTN R-5) is developed through three line breeding method. This hybrid is Mid-tall in height (100 to 105 cm.), late in duration (140 to 145 days) having long slender grain type. It has given 41.3 %, 26.9 % and 50.8 % increased yield over check KJT 2 in Konkan, Western Maharashtra and Vidarbha region. This hybrid has recorded 38.5 % increased yield over check KJT 2 on overall mean of two years testing at nine locations of Maharashtra State. In adaptive trial, Sahyadri 5 has recorded 27.8% and 12.9% higher yield over check Karjat 2 and Sahyadri 3, respectively in Konkan region. This hybrid is moderately resistant to leaf blast, neck blast, bacterial leaf blight, tolerant to Brown Plant hopper, White Backed Plant hopper, Green Leaf hopper, and Stem borer The average grain yield is 6.6 t/ha. This variety is recommended for cultivation in Konkan region

**2. Ratnagiri – 5 (RTN 99-1-2)**

This variety has been developed through hybridization followed by pedigree method from the cross between Zinia-63 × IR 64. This variety is dwarf in height (85 to 90 cm.), early in duration (115 -120 days), having short slender grain type. It has given 25.8%, 12.5% and 27.8% increased yield over check KJT – 4 in Konkan, Western Maharashtra and Vidarbha region. It has recorded 21.8 % increased yield over check KJT– 4 on overall mean of three years testing at nine locations of Maharashtra State. In adaptive trials, Ratnagiri - 5 recorded 17.3% higher yield over check Karjat - 4 in Konkan region. This variety is moderately resistant to leaf blast, bacterial leaf blight and neck blast. Tolerant to brown plant hopper, white backed plant hopper, green leaf hopper. The average yield is 3.6 t/ha. This variety is recommended for cultivation in Konkan region

**3. Karjat-8 (IET-19407)**

This variety has been developed through hybridization followed by pedigree method from the cross between Ratna × Heera × Karjat-4 . This variety has medium stature, non-lodging and late in duration (140 to 145 days), having short slender and translucent grain type. It has given 12.61 % increased yield over best variety check in Station trial (Quality). It has given 34.04%, 21.81% and 25.52% yield advantage on overall mean of two years than check Karjat 4 in Konkan, Western Maharashtra and Vidarbha region, respectively. This variety has given 28.05% yield advantage on overall mean of two years than check Karjat 4 in Maharashtra state co-ordinated trial (Quality). The Karjat-8 rice variety has recorded 17.31 and 19.94 per cent increased in grain yield over check Karjat –6 and Mahsuri respectively, in adaptive trials conducted on farmer's field. It is moderately resistant to blast, neck blast, bacterial leaf blight and tolerant to brown plant hopper and gall midge. The average grain yield is 3.5 to 4.0 t/ha. This variety is recommended for cultivation in Maharashtra state.

**b) Nagli : Dapoli safed - 1**

This variety has been developed by pure line selection method. It is selection from Gavhe local selection. This is the first white grain variety in Maharashtra. It has recorded 24.06 % higher grain yield over existing radish brown grained variety Dapoli-1. It has given 48.44 % higher grain yield over white grained national check - OUAT-2. This variety contains 12.32% and 26.16% more protein than Dapoli-1 and OUAT-2, respectively. This variety has 45.00 % and 61.16 per cent higher iron and manganese content, respectively over Dapoli-1. This variety is medium in height, late duration in (125 to 130 days) with average grain yield 1.5 t/ha. It is recommended for cultivation in Konkan region.

## **B) Horticultural crops**

### **a) Mango hybrid- 7/1 (Konkan Raja)**

#### **7/1 “Konkan Raja”**

The Mango Hybrid 7/1 is a cross combination between 2/8 Bangalora and Himayuddin. This variety has better fruit size (616 g) than parents Bangalora (170.3 g) and Himayuddin (350 g). Less sour due to less acidity 0.19% and TSS 8.5<sup>0</sup> B of unripe fruits. It is best for salad purpose. This variety has high percentage of perfect flowers (28.8%), regular bearer having higher pulp percentage (83%) than the parents Bangalora (72.68%) and Himayiddin (6807%) early maturing and good attractive shape and colour. The average yield is (65.85 kg/plant)

## **C) Animal Science - Small ruminants**

### **1. Konkan Kanyal Goat**

Konkan Kanyal breed is selected from local flock of the Konkan region and hence, is adaptable to agro ecological conditions of Konkan region. This breed is true to type. The growth performance of Konkan Kanyal goat breed is highly satisfactory. This breed is highly suitable for meat purpose having dressing percentage 53. The adult body weight in male and female are 49.99 kg and 31.77 kg, respectively after 2.5 years. The twinning percentage in Konkan Kanyal is 36.5. The average daily gain in weight is 70 gm in a male and 58 gm in a female. The body colour of this breed is black with white markings on collar, lower jaw and ventral surface. Head is black with bilateral white bands and black ears with white margin. The reproductive ability of Konkan kanyal breed is satisfactory. In Konkan Kanyal Disease incidence and mortality is negligible.

## **Other Recommendations**

1. Paired row planted dibbled hybrid rice under upland conditions may be grown (15x15-30 cm) in a single way skipping pattern and be fertilized @ 200 kg Urea-DAP briquettes (70 kg N and 37 kg P<sub>2</sub>O<sub>5</sub>) with their placement to 7 cm depth 10 DAS and the crop may be manured 7 WAS either with 7.5 tons Glyricidia green leaves or in situ grown *S.rostrata* crop in skipped rows @ 6 t ha<sup>-1</sup>. For effective weed management in such a crop hoeing with Japanese hoe 2, 4 and 7 weeks after sowing should be integrated with a manual weeding 6 weeks after sowing.
2. In North Konkan coastal zone for obtaining maximum productivity, net returns and B:C ratio ‘Rice-Sweet corn’ cropping system should be fertilized with recommended fertilizer dose using 100:50:50 (rice), 120:60:60 (sweet corn) kg. NPK-1 ha. inorganic nutrient sources.

3. Thinning of overcrowded branches and centre opening during rest period before the emergence of new growth (October) with recommended package of practices and timely application of Paclobutrazol for mango trees planted at normal distance (10 m × 10 m) is recommended
4. For getting higher yield and net returns from Alphonso mango orchards, it is recommended to grow radish, ridge gourd, bitter gourd, red pumpkin, brinjal, tomato, sweet potato and long yardbean in rabi season and tapioca and turmeric in rabi season as intercrops.
5. For getting higher yield of Alphonso mango fruits cattle urine having concentration 55% be sprayed from peanut stage 3-6 times at an interval of one is recommended
6. For obtaining early and higher yield of Kokum fruits, it is recommended to give two sprays of potassium nitrate (13:0:45) @ 3 per cent. First spray be given at fruit set and second 20 days after first spray.
7. For preparation of sweet kokum rind chutney from sweet kokum rind by product of (kokum syrup), make paste of rind and adjust its T.S.S to 55<sup>0</sup> B by addition of sugar. To this paste, add water in 1:1 proportion alongwith spices as per recipe and boil the mixture till T.S.S. reaches 68<sup>0</sup> B.
8. For preparation of best quality clarified juice from ripe kokum rind, make paste by grinding in a mixer, then with the muslin cloth squeeze, mix 1000 ppm sodium benzoate in filtered juice and store for sedimentation at cool and dry place for minimum 7 days. From this juice best quality syrup and RTS can be prepared as per recipe.
9. For preparation of powder from ripe Alphonso mango, do osmosis of slices by taking sugar in 1:1:2 proportion with 1000 ppm potassium metabisulphite, dry them in a dryer and prepare powder by using grinder. This powder can be used for preparation mango nectar.
10. The machine based on soft 'X' ray imaging technique developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, ECIL Hyderabad and CEERI, Chennai could be used for online accurate detection and auto sorting of defective fruits including spongy tissue at fourth day after harvest.
11. It is recommended to prepare wine from cashew apples by using technology developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri (M.S.).
12. It is recommended to prepare wine from ripe Karonda fruits by using technology developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri (M.S.).
13. For obtaining higher net returns from coconut garden in Konkan region of Maharashtra planting of medicinal and aromatic crops viz. arrowroot and lemongrass as a intercrops in coconut plantation is recommended.

#### **Animal Science**

14. For higher, growth Konkan Kanyal bucks should be reared in stallfed condition under agro climatic region of Konkan.

#### **Dairy Science**

15. It is recommended to use KMnO<sub>4</sub> or iodine Solution @ 0.1% or 0.2% concentration respectively, as pre milking disinfectants in combination with Sodium hypochlorite @ 15

ppm or LP system activation @ 40:25 as post milking preservatives helps in enhancing shelf-life of milk up to 9 hrs. depending upon storage temperature.

16. It is recommended to incorporate cobalt and zinc in combination of 2.5 and 45 mg/kg, respectively in feed for better growth of the dry of sea bass (*Lates calcarifer*)
17. It is recommended to incorporate cobalt and zinc in combination of 5.0 and 30 mg/kg, respectively in feed for better growth of the fry of catfish (*Clarius batrachus*).
18. It is recommended to use cooked deoiled cottonseed oilcake as a feed ingredients for better growth of fry of common carp, *Cyprinus carpio*.
19. On the basis of PRA analysis it is recommended to initiate the efforts to reduce number of fishing fleets and regulate mesh size of nets used for fishing on scientific basis as well as to establish fish landing centers along with all the necessary infrastructural facilities in all the coastal fisher villages.
20. The Farm feed prepared by Dr. B.S. Konkan Krishi Vidyapeeth using dried Bombay duck powder is recommended for growing fingerling (35 g.) of sea bass *L. calcarifer* in ponds for better production.
21. Three sprays of fungicide containing Metalaxyl 8% + Mancozab 64% @ 0.2% are recommended for control of fruit drop of sapota caused by *Phytophthora* spp. First spray be given on the onset of monsoon followed by two more sprays at monthly interval. Sticker @ 0.2% be used in fungicide solution.
22. For effective control of blossom blight disease of mango, two sprays of Carbendazim (0.1%) or Propineb (0.2%) or Thiophanate methyl (0.1%) at 10 days interval is recommended. First spraying should be started at initiation of flowering flush.
23. For management of leaf blight and foot rot of black pepper caused by *Phytophthora capsici* spraying of 1% Bordeaux mixture and drenching of 0.1% Copper oxychloride or spraying of 0.3% Potassium phosphonate and soil application of *Trichoderma harzianum* @ 50 g/vine with 1 kg of neem cake is recommended twice in the rainy season, first application be given with on set of monsoon- June and second application during August.

#### **Soil and Water Conservation Engineering**

24. Farm pond having size 60 m × 30 m and depth 3 m. lined with 250 GSM, UV stabilized lining material is recommended for harvesting rainwater and its use for irrigation in South Konkan region
25. Online pond on upper reaches of the watershed is recommended for recharging of ground water in the South Konkan region.
26. An average effective life of staggered contour trenches, 4 m x 0.6 m x 0.3m at 4 m HI, is 10 years in non arable land having 25-30 % slope in South Konkan Region.

#### **Agril. Process Engineering**

27. Small-scale dryer developed by DBSKKV Dapoli is recommended for drying of arecanut. As compared to traditional drying method it takes less time.
28. The Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli developed 5 kg capacity CNSL extractor using 1.4m diameter concentrating solar reflector is recommended for extraction of Cashew Nut Shell Liquid.
29. The Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli developed semi circular solar tunnel dryer is recommended for fish drying in lesser time.

#### **Farm Machinery and Power Engineering**

30. The Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli developed Bullock Drawn Zero Till Drill is recommended for Konkan region for sowing beans after harvest of kharif rice.
31. The Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli developed hand operated arecanut dehusker is recommended for dehusking the arecanuts.
32. The Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli developed tractor mounted hydraulic elevator is recommended for the coconut harvesting up to 12 m tree height.
33. The manually operated multi fruit harvester developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli is recommended for harvesting different fruits like mango, cashew and kokum.

## **Social Sciences**

### **Extension Education**

34. The concerned authorities should pay attention towards sensitization of woman Gram Panchayat members with regard to various agricultural development programmes and motivating them to participate in the agricultural development programmes.

### **Agril. Economics**

35. In Konkan region during summer for increasing the water level of the wells and for giving protective irrigations to rabi crops, less expensive Vijay Bandharas be constructed on rivers.

### **Agril. Statistics**

36. In last 20 years the area under rice has declined at the rate of 1666 ha annually in the Konkan region. This is an alarming situation that needs to be considered while planning for agricultural development in the regions.

## **Significant Achievements**

The Centre of Excellence for Alphonso mango is sanctioned with budget outlay of Rs. 6.36 crores to the university under Indo-Israel work plan on Mango for Konkan region by the Central Govt. under National Horticulture Mission programme as per the letter No. MSHMPB/HRD/Indi-Israel/1110/2010, dated 24/2/2010.

The State Level Joint Agresco Research Council meeting of four agricultural universities was held at Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli during May 31 to 2 June 2010. A meeting was inaugurated at the hands of Hon. Shri Narayanrao Rane, Revenue Minister and was presided over by Hon. Shri Balasaheb Thorat, Agriculture Minister, Govt. of Maharashtra. The minister of the State for Agriculture Hon. Shri. Gulabrao Deokar, Vice Chairman, MCAER, Pune, Hon. Shri. Vijayrao Kolte were present as special guests for the meeting. The Vice-Chancellors of all four agricultural universities, coordinators of different crops, scientists from four agricultural universities, officials of development departments of the State Government attended the meeting. Directors of Research of four agricultural universities presented the report of research work carried out during previous year of the respective university. Coordinators of different crops/subjects presented their reports. Completed research programmes were discussed in detail. Similarly, future line of research programme was also discussed thoroughly. Necessary suggestions were given by the scientists/experts in order to improve the quality of research work. The recommendations based on completed research programmes and proposals for release of new crop varieties were also discussed thoroughly and finalized for extension agencies. This university has released 5 crop varieties, one goat breed and 36 recommendations in this meeting.

Mr. Cliff Love, Scientist Israel, Mr. Avri Bar Zur, Israel Consulate and Mr. Abasaheb Haral, Project Coordinator and Managing Director, Maharashtra State Horticulture and Medicinal Plant Board, Pune visited this university during 14-18 June 2010 for technical discussion on the research project under Indo-Israel Work Plan "Centre of Excellence for Alphonso Mango". During this meeting officers of Agriculture Department and progressive farmers from the region were invited. Mango pruning demonstration and training was given to the mango growers. For this purpose, Israel made mango pruning machine brought from Bangalore and farmers and technical persons of Agriculture Department were trained. Interactions between Israel expert and University scientists was also arranged.

The Annual Group Meeting of All India Co-ordinated Research Project on Agroforestry was organized at Dapoli during 10-12 July, 2010. The inaugural function was held under the chairmanship of Dr. V. B. Mehta, Hon. Vice Chancellor. The meeting was inaugurated by Dr. A. K. Singh, Hon. DDG (NRM), ICAR, New Delhi, Dr. S. K. Dhyani, Director, NRC for Agroforestry (ICAR), Jhansi, Dr. B. B. Jadhav, Director of Research, Dr. B.S.K.K.V, Dapoli and Dr. S. V. Sarode, Director of Research, Dr. P. D. K. V., Akola were present on the occasion. The meeting was attended by 112 scientists from 26 SAUs and 3 ICAR institutes. The research achievements/annual progress reports of various centres were discussed thoroughly during the meeting. The technical programme to be implemented during 2010-11 was also finalized.