

Information on AICRIP Centre - Kual

1. Name of the University / Department : CCS Haryana Agricultural University, Hisar

2. Name of the Centre with postal Address : Rice Research Station, Kaul-136021, Kaithal, Haryana, Phone no. 01746-254550, Fax: 01746-245946

3. Name of the Person In charge : Dr. V.P.Singh, Sr. Scientist & Head, Mobile no. 9416484187

4. Next Contact person : Dr. Rattan Singh, Sr. Rice Breeder, Mobile no. 9896465253

5. Year of Establishment as AICRIP Centre : 1974-75

6. List of Scientist Currently on AICRIP Roll :

- i) Dr. Rattan Singh, Sr. Rice Breeder
- ii) Dr. Khushi Ram, Sr. Rice Breeder
- iii) Dr. B.S.Mehla , Rice Breeder
- iv) Dr. Mangal Ram, Agronomist
- v) Dr. Ram Singh, Sr. Plant Pathologist
- vi) Dr. Lakhi Ram, Entomologist

7. List of Other AICRIP Staff : Nil

8. Region of the State represented by the Centre:

North- Eastern Haryana. However being sole Rice Research Station in the state, it is responsible for rice related problems of the entire state.

9. Rice Ecologies Represented : Irrigated Ecosystem

10. Districts of the State Covered : Entire State. Rice is grown in all the 20 districts of
of
the state except Mohindergarh

11. Rice Area in each of the District-ecology wise :

* North eastern, Haryana: About 80% rice growing area in the districts of Kaithal, Karnal, Kurukshetra, Amabala, Yamunanagar, Panchkula, Panipat, parts of Jind and Sonapat

* South-western, Haryana: About 20% area in the districts of Sirsa, fatehabad, Hisar, Rohtak, Bhiwani, Jhajjar, Faridabad, Gurgaon, Mewat & Rewari

Total estimated rice area in Haryana : 10,50,000 ha

- 12. Normal Rain fall** : 650-700 mm annual
- 13. Soil Type** : Clay to clay lam; Low in N; Medium in P, High in K, Low to Medium in Zinc and High in other nutrients
- 14. Popular rice varieties** : HKR 47, HKR 126, Taraori Basmati & Hybrid HKRH-1
- 15. Major production constraints** :
- * Inadequate an dintermittent electric supply,
 - * Limited availability of canal water
 - * Increasing incidence of insect-pests, diseases and other abiotic constraints like *khaira* and chlorosis
 - * Reduction in the level of organic carbon to alarming limits and imbalanced use of fertilizers (excess nitrogen)
 - * Limited use of green manuring and FYM
 - * Limited facility of post harvest handling, marketing and storage of rice
 - * Limited availability of modern agricultural implements
- 16. Major Contribution of the centre** :
- Two high yielding non-scented varieties medium duration(136-150) viz., HKR 120 & HKR 126 and two mid early duration(120-135 days) varieties namely, HKR 46 & HKR 47 have been released for general cultivation in the state
 - A non-scented hybrid HKRH -1 has been released by State Variety Release Committee.
 - another bacterial blight resistant non-scented strain HKR 99-60 has been found promising in the early duration group.
 - Taraori Basmati (tall) possessing excellent quality of rice for export purpose and Haryana Basmati-1 (semi-dwarf) with resistance to blast and 40% yield gain over Basmati 370 has been released for general cultivation in the state.
 - A scented variety Haryana Mahak-11 and medium & early duration hybrids HKRH-2 & HKRH-21 have been identified and are being tested at farmers's field.
 - A blast resistant basmati strain HKR 98-476 has been identified in All Rice Group Meeting for cultivation in Haryana and J & K.
 - Optimum time of transplanting for medium duration, early duration and basmati rice varieties has been found to be June 15 to July 15 to end of July and 1st fortnight of July,

respectively.

- Weeds in paddy can be effectively controlled by use of herbicides, viz., butachlor, pendimethalin, anilophos and pertilachlor.
- Foliage pruning of excessive vegetative growth of tall statured basmati after 45-55 days (10-15 cm above upper most collar level) of transplanting has been recommended to avoid lodging.
- Rice grain yield was significantly superior with the incorporation of residues of both rice and wheat crops over their burning and removal. An increase of 13.5% in productivity of rice+wheat was recorded with the incorporation of residues of both crops over their removal.
- Organic carbon and total N contents in the soil increased with the incorporation but decreased with the burning of crop residues.
- The recommended doses of N,P,K and Zinc sulphate are 150:60:60:25 kg, 120:60:60:25 and 60:30:30:25 kg for medium duration (HKR 120& HKR 126), mid-early duration and semi-dwarf basmati strains (Haryana Basmati-1) and tall basmati varieties (Basmati 370 and Taraori Basmati), respectively.
- Under integrated nutrient management in rice-wheat sequence, the highest grain yield (34 t/acre) of paddy (variety HKR 120) was obtained where FYM was applied @ 4q/acre with 48 kg N/acre. With burnt rice husk (3 t/acre) and summer fallow the highest grain yields were 33.6 and 31.3 q/acre, respectively at 64 kg N/acre. The highest grain yield with green manuring of Dhaincha and 32 kg N/acre was 32.7 q/acre. In control plots about 3.8,9.9 and 14.8 q/acre extra grain yields were obtained in Ash, FYM and Dhaincha plots over summer fallow plots where no nitrogen was applied.
- FYM and green manuring with *Dhaincha* resulted in saving of 25% and 50% of N, respectively along with improvement in physic-chemical properties of the soil.
- The submergence (5+2 cm) of rice crop up to panicle emergence and saturation thereafter was more economical over the continuous submergence.
- Among insect-pests and diseases, blast and bakanae in basmati group and bacterial leaf blight and false smut in high yielding dwarf varieties have been identified as major diseases while leaf folder, white backed plant hopper (WBPH) and stem borer as major pests.
- Resistance sources for major diseases viz., BLB, blast and stem rot and insect-pests such as WBPH, leaf folder & stem borer have been identified and are being used in resistance breeding programme.
- Planting of basmati varieties before mid July, avoiding water stress at panicle emergence stage and application of tricyclazole (Beam/ Sivic) at 120 g/acre or edifenphos (Hinosan) at 200 ml/acre or Carbendazim (Bavistin) at 200 g/acre at leaf blast initiation and panicle emergence stage have been recommended for management of blast.
- For the control of bakanae, seed soaking in MEMC (Emisan) or carbendazim (Bavistin) at 10 g/10 litre water per 10 kg seed for 24 h and uprooting of rice nursery in standing water have been recommended.
- Avoiding late top dress of N particularly at booting stage and application of the copper

oxychloride at 500 g/acre at 50% panicle emergence stage has been recommended against false smut while propiconazole at 200 ml/ac has been found promising.

- Copper hydroxide (Kocide 2000 54 DF) at 2.5 g/L has been recommended to minimize the incidence of bacterial leaf blight.
- for the control of WBPH, the spraying of Endosulphan 35 EC(350ML), Diclorovos 76 EC (Nuvan 125 125 ml), monocrotophos 36 SL @ 250 ml in 200 litre of water/ ac or dusting of methyl parathion 2% (Folidol) @ diluted in 1.5 litre water mixed in 15-20 kg sand in standing water is recommended.
- for leaf folder, spraying of 350 ml Endosulphan 35 EC or 200 ml monocrotophos 36 SL or 400 ml quinalphos 20 AF in 200 litre of water/ac or dusting with methyl parathion 2% @ 10 kg/ac is recommended.
- For the management of stem borer, a devastating pest of basmati rice, spraying of 500ml methyl parathion 50 EC (Metacid) or monocrotophos 36 SL or 1 Litre of water 400 ml quinalphos 20 AF in 200 litre of water /ac or dusting with methyl parathion 2% @ 10 kg/ ac is recommended.
- Foliage pruning after 45-55 days (10-15 cm above upper most collar level) of transplanting is recommended to reduce plant height and avoid lodging in tall stature basmati varieties.
- carbofuran at 1 kg a.i./ha has been recommended for the control of root knot nematode while carthydrochloride @ 0.6 g a.i./m² has been found effective.
- Breeder and TFL seed of paddy, wheat and pulses is produced to meet out the requirement of seed producing agencies and farmers.