

## Extension Personal Training on New Technologies and Development in Rapeseed & Mustard Cultivation

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ARTICLE ID: 071

### Introduction:

Rapeseed-mustard crops in India comprise traditionally grown indigenous species, namely toria (*Brassica campestris* L. var. toria), brown sarson (*Brassica campestris* L. var. brown sarson), yellow sarson (*Brassica campestris* L. var. yellow sarson), Indian mustard [*Brassica juncea* (L.) Czern & Coss], black mustard (*Brassica nigra*) and taramira (*Eruca sativa/vesicaria* Mill.), which have been grown since about 3,500 BC along with non-traditional species like gobhi sarson (*Brassica napus* L.) and Ethiopian mustard or karan rai (*Brassica carinata* A. Braun). Rapeseed and mustard are the major rabi oilseed crops of India. They occupy a prominent place being next in importance to groundnut both in area and production, meeting the fat requirement of about 50 % populations of Uttar Pradesh, Punjab, Rajasthan, Madhya Pradesh, Bihar, Orissa, West Bengal and Assam. It constitutes a group of oil seeds comprising 2 distinct types 1) autogamous: yellow sarson and brown sarson (toria) and Indian mustard and 2) allogamous: brown sarson and Lotnitype and toria and taramira (rocket salad). India is one of the largest producers of rapeseed and mustard in the world. India contributes lion's share in production of rapeseed and mustards and stand first in the world.

### Economic importance:

Rapeseed contains about 42 % oil and mustard contains about 38-40 % oil. The seed and oil are used as condiments in the preparation of pickles and for flavouring curries and vegetables. The oil is utilized for human consumption throughout Northern India in cooking and frying purposes. It is also used in the preparation of hair oils and medicines. It is used in soap making in mixture with mineral oils for lubrication. Rape seed oil used in the manufacture of greases. The oil cake is used as a cattle feed and manure (5.2 N, 1.0 P<sub>2</sub>O<sub>5</sub> and 1.4 K<sub>2</sub>O). Due to glucosinolates, mustard cake is not suitable for human purpose as it is

adversely affects protein. Green stems and leaves are a good source of green fodder for cattle. The leaves of young plants are used as green vegetables as they supply enough sulphur and mineral in the diet. In the tanning industry, mustard oil is used for softening leather. Mustard oil contains erucic acid in high amount and it is removed before use as edible oil.

### Production status:

The estimated area, production and yield of rapeseed-mustard in the world was 36.59 million hectares (mha), 72.37 million tones (mt) and 1980 kh/ha, respectively, during 2019-20. Globally, India account for 19.8 % and 9.8 % of the total acreage and production (USDA). Rapeseed–mustard crops in India are grown in diverse agro climatic conditions ranging from north-eastern / north western hills to down south under irrigated/rainfed, timely/late sown, saline soils and mixed cropping. Indian mustard accounts for about 75-80 % of the 6.23 m ha under these crops in the country during 2018-19 crop season. Soybean, groundnut and rapeseed-mustard are the major oilseed crops in India contributing nearly 84% and 88% to its total acreage and production, respectively (Average of 2014-15 to 2018-19).

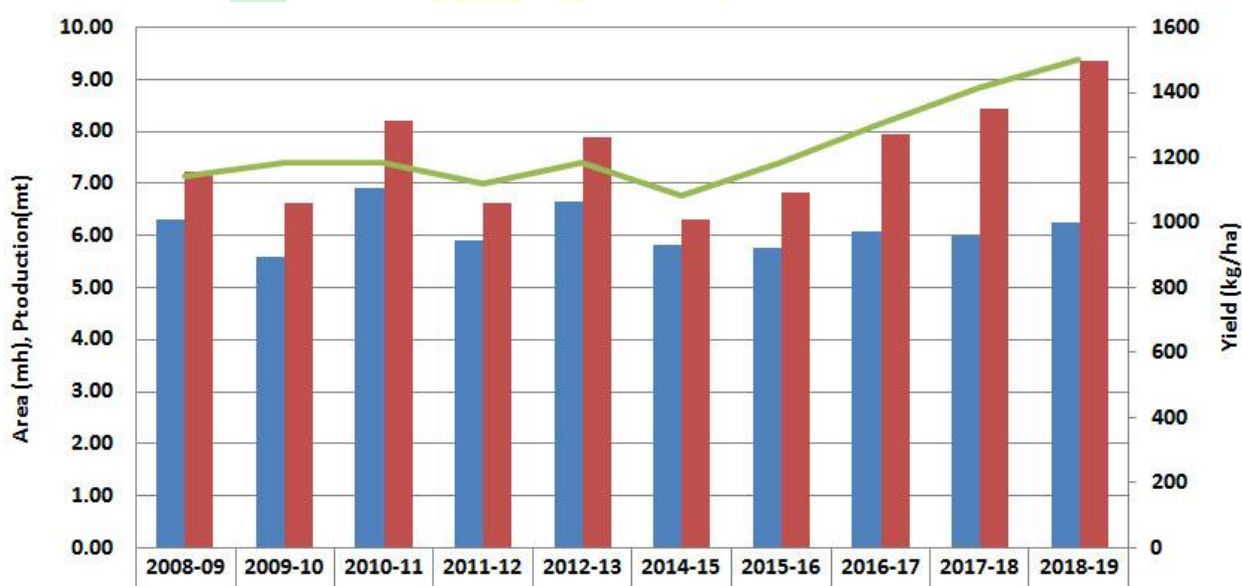


Fig.-1: Rapeseed-Mustard Production trends in India.

### Brief about the training programme :

Training for extension personal on “**New Technologies and development in rapeseed-mustard cultivation**” organized on March 06-07, 2021 in Directorate of extension of the Chandra Shekhar Azad University of Agriculture & Technology, Kanpur and was inaugurated by Dr. D.R. Singh, Hon’ble Vice-Chancellor on 06.03.2021. Dr. H.G. Prakash,



Director, AES of the University welcome the participant. Dr. Mahak Singh Professor & Head department of Genetics & Plant Breeding and Incharge AICRP (R&M) gave presentation on over view and objective of training programme to the participant. Eight lectures on different aspects were delivered by different scientists i.e. production technology of rapeseed mustard for Uttar Pradesh (Dr. Mahak Singh), Insect pest management of rapeseed mustard (Dr. D.R. Singh), Weed & nutrients management in rapeseed mustard (Dr. Karam Hussain), Production enhancement of rapeseed mustard through bee keeping (Dr. Y.P. Malik), Seed production technology in rapeseed mustard, (Dr. C.P. Sachan), Quality and utilization of rapeseed mustard (Dr. Nand Kumar), Important diseases of Rapeseed Mustard and their management (Dr. Ved Ratan Tiwari), given by scientist of the University along with field visit of participants at Oilseed Research Farm Kalyanpur Kanpur (Dr. D. K. Singh). Extended vote of thanks to the participant, University authorities and chair was given by Dr. D.R. Singh, Dean College of Agriculture, C.S.A.U. Kanpur.

During the training programme scientists of different branches working on Rapeseed & mustard were suggested that their valuable views for further strengthening of Rapeseed & mustard production, quality and other aspects. Dr. D.R. Singh & Dr. Ved Ratan were suggested that recommended practices of insect-pests and diseases management should be done at appropriate stages of insect attack & pathogen infections. Dr. Karam Hussain was suggested that weed management should be done at appropriate crop stages and the recommended doses of nutrient/fertilizers should be applied at proper time & suitable crop stages. Honey bees are always helpful for enhancing pollination in Rapeseed & mustard, which may increase the yield nearly 25-43 %. Dr. C.P. Sachan was suggested that during the seed production of Rapeseed & Mustard proper isolation distance should be maintained between the seed production field and other field of the same variety. Roughing should be done at different stages of crop and proper field inspections should be done by a seed production officers at different intervals for maintaining the quality, genetic purity & physical purity of the seed. Dr. Nand Ram was suggested that recommended oil quality improvement in Rapeseed-mustard e.i.; reduced erucic acid content < 2% and glucosinolate contents < 30  $\mu$  mole / g in oil free meal for safe consumption of edible oil. Dr. Mahak Singh concluded the overall contribution of the Section of Oilseeds in terms of varietal development/achievements. He has been developed ten varieties of Rapeseed-mustard from

Name of centre	Title of training	Date of training organized	Total number of participants	Designation of the participants	Block/district Of the participants
C.S.A. Univ. of Agri & Tech. Kanpur	New Technologies and developments is Rapeseed- Mustard cultivation	March 06-07, 2021	20	BSA, SDO, BTM , ATM & TA .	Bichhiya, sikanderpur murka, Bee ghapur Fatehpur ,Chaurasi Bangarmau,

the Kanpur centre namely; Urvashi (RK 9501), Basanti (RK 8501), Kanti (RK 9807), Maya (RK 9902), Ashirwad (RK 01-3), Pitambari (RKYS 05-2), Tapeshwari (TK 06-1), Azad Chetna (TKM-14-2), Azad Mahak (KMR (E) 15-2) and Surekha (KMR-16-2).

**Table-1: Two days training programme for Extension Personals**



**Group Photo of Training programme Co-Ordinator, other staff & Extension Personals.**

Table-2: Details of the participants

S. No.	Name of the Participant	Designation	Mob. No.	Address (H.Q)
1.	Shri. D.K.Verma	BSA. Unnao	9473599465	Dupty Director Agriculture, Unnao (U.P.)
2.	Shri. Vikash Kishore	SDO Sadar, Unnao	9453597675	-Do-
3.	Shri. Man Singh	T.A.	9557244303	-Do-
4.	Shri. Shambhu Dayal	T.A.	7991718692	-Do-
5.	Shri. Satish Kumar	A.T.M.	9721194897	-Do-
6.	Shri. Aarpit Saini	B.T.M	9125690002	-Do-
7.	Shri. Abhiskk Kumar	T.A.	8433470421	-Do-
8.	Shri. Chhavi Shankar	T.A.	9794068875	-Do-
9.	Shri. Sunil Kumar	T.A.	9634997420	-Do-
10.	Shri. Surendra Kumar	A.T.M	6398387442	-Do-
11.	Shri. Gaurav Kumar	T.A.	7460859499	-Do-
12.	Shri. Ajay Kumar	B.T.M	9956220957	-Do-
13.	Shri. Rajnish Singh	T.A.	7895349484	-Do-
14.	Shri. Pradeep Kr.Yadav	T.A.	9451703576	-Do-
15.	Shri. Rajesh Kr. Verma	A.T.M	9451505436	-Do-
16.	Shri. Ramesh Yadav	T.A.C	9235855341	-Do-
17.	Shri. Ram Pr. Saxena	B.T.M	8115370947	-Do-
18.	Shri. Rajesh Kumar	T.A.	8707610628	-Do-
19.	Shri. Vijay Pr. Singh	B.T.M	9451512288	-Do-
20.	Shri. Alok Kumar	T.A.	7906409423	-Do-

### Conclusion & Future Prospects:

The Extension Personal directly or indirectly contact with the farmers. So, that training will be benefitted to the Extension Personal and also farmers indirectly. This Extension Personal regularly goes to the farmers field and contact with farmers and collecting

the information for crops (variety, sowing methods, fertilizer doses, insect-pest and diseases management, marketing their produce, etc.). In future this types of training for Extension Personal will be more beneficial to teach and extension of the new technologies developed by the concern Scientists & SAU's.

#### Acknowledgement:

Professor Mahak Singh (Training Programme Co-ordinator) acknowledge to Dr. D.R. Singh, Hon'ble Vice-Chancellor of Chandra Shekhar Azad University of Agriculture & Technology, Kanpur for providing the travels facilities, constant support, and giving valuable suggestions during whole training programme & also thankful to Director, Directorate of Rape-seed Mustard Research, Sewar, Bharatpur-321303, Rajasthan, India for providing us financial support for conducted this training program



**Fig.-3: Training activities during Two days trainings for Extension Personals.**



**Fig.-4: A group photo of all the staff of Section of Oil Seeds at CSAUAT, Kanpur.**