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Improving the socio economic conditions of farmers by using quality seed and planting material

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Abstract

Availability of good quality seeds is responsible for increasing both production and productivity of both agricultural and horticultural crops. Crop productivity is directly related to the genetic potential of the seed planted. Landmark achievement of green revolution is due to introduction of high yielding varieties. Mega Seed Project-Chatha, SKUAST-Jammu a centre of ICAR-Seed Project "Seed production in Agricultural Crops" is constantly striving hard to produce quality seed and enhance the economy of farmers. The present compilation represents the Quality Seed production of Paddy, Wheat, Pulses, Vegetables, Horticulture Plants, etc. for the year 2018-19 produced by Mega Seed Project-SKUAST-Jammu. Paddy, Urdbean and Sesame seed produced of different varieties during 2018-19 by various seed producing components of SKUAST –Jammu: Research Stations/Farms/Div./KVK's etc was 225.65 quintals and Wheat, Peas, Oil seeds, Mustard, Oats seed produced of different varieties was 629.00 quintals and Planting materials (No.s) 4,12,599.00.

Keywords: Quality seed production, seed project, planting material

Introduction

Seed may be defined botanically as well as agronomically. Botanically seed is a ripened ovule. Seed are normally the product of sexual reproduction. Agronomically seed may be defined as any part of the plant which is being used for raising a commercial crop. It may be vegetative part of the plant or mature embryo or grain of the plant. But, some seeds are produced without pollination, called apomixis. eg. citrus crops, mango. The biological function of seed is propagation of the species. This is also one of the major functions of seeds in Agricultural practice. Seeds are the major sources of food for the world Cereal crops: wheat, rice, corn, barley, oat, rye, millet, sorghum etc. Pseudo cereals: buckwheat, amaranth etc. Oilseed crops: soybean, sunflower, canola and other mustered etc. Pulses: lentils, chickpeas, pea etc. Beans: kidney bean, pinto bean, fava bean, lima bean, butterbean, pigeon pea. Orthodox Seed: Seed of this type can be dried to a moisture content of 5% or 25% without losing their viability. e.g. Rice, wheat, maize, rapeseed mustard, soybean, cabbage, cauliflower etc. (Tetrazolium test is being used to detect the viability of the orthodox seed)

Recalcitrant Seed: The viability of this group of seeds drops drastically, if their moisture content is reduced below 12-13%. e.g. The seeds of citrus, coffee, rubber, mango, jackfruit and other forest trees etc.

A statement "*Subeejam Shushereto Jaayaty Sampdayate*" means "Good quality seed on good land yields abundant produce" appearing in the ancient Hindu Manuscript i.e. Manu Smriti illustrates that the use of good quality seed is indispensable for the successful production of any crop. Good quality seed: The good quality seed means that it should be genetically pure, it should be cheap and easily available in the market, free from undesirable weed seeds/ dust, inert matters etc. it should have good looking appearance with uniformity, it should be viable and vigorous with genuine genetic purity, free from seed born diseases and other insects and pests, it should have higher adaptability, minimum moisture content and high germination percentage, it should have height yielding ability and superior quality.

With establishment of ICAR funded Seed Projects in State Agricultural Universities (SKUAST-Jammu and SKUAST-Kashmir), the availability of quality seeds have improved. The technical and infrastructure facilities are available at SKUAST-Jammu to train the farmers for seed production as well as to produce and supply the quality seeds of different crops, Amrish *et al.* (2015-16), Dadlani *et al.* (2009) [2].

Material and methods

Various Seed Producing components of SKUAST –Jammu: Stations/Farms/Div./KVK's etc contributed for providing the quality seed/Planting material for processing/distributing to the Dept. of Agriculture/Farmers. The centers contributing for the same are: The Research Farm-Chatha, SPF-Chatha, Division of Plant Breeding and Genetics, Division of Fruit Science, Div. of Vegetable Science and Floriculture, ACHR-Udheywala, Adv. Centre for Rainfed -Dhiansar, RHRSS-Bhaderwah, Pulse Research Centre-Samba, Rainfed Research Sub-Station for Sub-tropical Fruits-Raya, KVK's of SKUAST-Jammu.

Results and discussion

Paddy seed produced of different varieties during 2018-19 by various seed producing components of SKUAST –Jammu: Stations/Farms/Div./KVK's etc was 218.05 quintals and Wheat seed produced of different varieties was 360.00 quintals (Table 2 & 3). In Paddy (Table 2) variety B-370 we produced 10.5 Qtls. of Breeder Seed, in Pusa-1121 Breeder Seed 2.25 Qtls. and 100.00 qtls. of Foundation Seed was produced, in JB-129 Breeder seed 10.0 Qtls. was produced, in Pusa-1612 Breeder seed 0.60 qtls. was produced, in Pusa-1728 Breeder seed 0.40 qtls. was produced, in K-448 Breeder seed 1.15 qtls. was produced, in K-39 Breeder seed 1.15 qtls. and Foundation seed 50.00 Qtls. was produced, in Giza-14 Breeder Seed 2.00 qtls. was produced, in Urdbean variety PU-31 Foundation seed 7.00 qtls. was produced, in IPU-94-1 Breeder seed 1.00 qtls. was produced, in Sesame variety RT-351 Breeder seed 0.10 qtls. was produced, (Table 2).

In Wheat variety WH-1105 35.00 qtls. of Breeder seed was produced (Table 3), in variety WH-1080 30.00 qtls. of Breeder seed and 200 qtls. Of Foundation Seed was produced, in variety WH-1021 10.00 qtls. of Breeder Seed was produced, in variety WB-02 10 qtls. of Breeder Seed was produced, in variety HPW-349 Breeder seed 35.00 qtls. was produced, in variety JAUW-584 Breeder seed 20.00 qtls. was produced, in variety JAUW-598 Breeder seed 20.00 qtls. was produced and In variety HD-3086 250.00 qtls. Of Certified Seed was produced.

In Peas variety Prakash Breeder seed 0.50 qtls. was produced (Table 3). In Oilseeds Variety DGS-1 Breeder seed 0.20 qtls. was produced, in RSPN-25 Breeder seed 0.30 qtls. was produced and Foundation Seed 1.5 qtls. was produced, in RSPN-01 Breeder seed 0.05 qtls. was produced. In Toria variety RSPT-1 Breeder seed 0.10 qtls. was produced, in variety RSPT-2 Breeder seed 0.10 qtls. was produced, in variety RSPT-6 Breeder seed 0.25 qtls. was produced and Foundation Seed 1.0 qtls. was produced. In Mustard variety RSPR-01 Breeder seed 0.20 qtls. was produced, in variety RSPR-03 Breeder seed 0.20 qtls. was produced and in variety RSPR-69 Breeder seed 0.20 qtls. was produced. In Oats Sabzar variety Foundation Seed 50.00 qtls. was produced.

Quality Planting material of Fruit crops (Table 4) produced in 2018-19 are: *Litchi* 278 plants, *Mango* 879 plants, *Walnut* 03 (root stock), *Peach* 247 plants, *Plum* 81 plants, *Pomegranate* 58 plants, *Pear* 6 plants, *Custard apple* 87 plants, *Beal* 40 plants, *Jack fruit* 41 plants, *Pecan nut* 2000 plants, *Strawberry* 82000 (runners), *Guava* 439 plants, *Apple* 284 plants, *Apricot* 2 plants and *Citrus* 2604 plants. (Table 2).

Vegetable Crops Seeds/ Planting material produced in 2018-19 are : Knol khol (seedling) 30000, Marigold (seedling) 5550, Bottle gourd (seedlings) 23000 plants, Bitter gourd (seedlings) 18000 plants, Cucumber (seedlings) 130000 plants, Tomato (seedlings) 65000 plants, Brinjal (seedlings) 10000 plants, Broccoli (seedlings) 20000 plants, Cauliflower (seedlings) 30000 plants, Chilli (seedlings) 5000 plants, Exotic vegetables (seedlings) 10000 plants, Coriander Seed 100 gm (Table -4) the similar methodology has been used by Hosamani *et al.* (2012)^[3], Kaddi *et al.* (2015)^[4], Singh *et al.* (2015)^[6].

The quality seed and planting material was provided to the farmers of Jammu region through Dept. of Agriculture and directly distributed to farmers through University /Kissan Mela /training programmes/open sale. By increasing the seed replacement rate using high quality seed material the economy of the farmers was enhanced. Training programmes on Quality seed production of various crops were conducted for generating awareness among farmers.

Following is the detail of seed production during 2018-19 at Mega Seed Project, SKUAST-Jammu.

Table 1: Quality Seed Production During 2018- 19 (in quintals)

Particular	Kharif 2018		Rabi 2018-19		Total
	In Institute/University farm	In Institute/University farm (Approx. yield)	Target	Achievement	Production
Field Crops	Target	Achievement	Target	Achievement	
Breeder seed	22.85	28.65	105.0	126.50	155.15
Foundation seed	197.0	197.0	250.0	252.5	316.50
Certified seed	0.0	0.0	200.0	250.0	250.0
Total	219.85	225.65	555.0	629.0	721.65
Planting materials (Nos.)					4,12,599.00

Table 2: Seed Production undertaken in Institute/university farms during *Kharif* 2018 (in quintals)

Crop	Variety	Breeder seed		Foundation seed		
		Target	Production	Target	Production	
Paddy	B-370	10.0	10.50	0.0	0.0	
	Pusa-1121	2.0	2.25	100.0	100.0	
	JB-129	5.0	10.00	0.0	0.0	
	Pusa -1612	0.50	0.60	0.0	0.0	
	Pusa-1728	0.25	0.40	0.0	0.0	
	K-448	1.0	1.15	50.0	40.0	
	K-39	1.0	1.15	40.0	50.0	
	Giza-14	2.0	2.0	0.0	0.0	
	Urd bean	PU-31	0.0	0.0	7.0	7.0
		IPU-94-1	1.0	1.0	0.0	0.0
Sesame	RT 351	0.10	0.10	0.0	0.0	
Total		22.85	28.65	197.0	197.0	

Table 3: Rabi 2018-19: Seed Production undertaken in Institute/ university farms (in quintals approx.)

Crop	Variety	Breeder Seed		Foundation seed		Certified seed	
		Target	Production (approx.)	Target	Production	Target	Production
Wheat	WH-1105	30.0	35.0	0.0	0.0	0.0	0.0
	WH-1080	25.0	30.0	200.0	200.0	0.0	0.0
	WH-1021	05.0	10.0	0.0	0.0	0.0	0.0
	WB-02	05.0	10.0	0.0	0.0	0.0	0.0
	HPW-349	30.0	35.0	0.0	0.0	0.0	0.0
	JAUW-584	20.0	20.0	0.0	0.0	0.0	0.0
	JAUW-598	20.0	20.0	0.0	0.0	0.0	0.0
	HD-3086			0.0	0.0	200.0	250.0
Peas	Prakash	0.40	0.50	0.0	0.0	0.0	0.0
Oil Seeds	DGS-1	0.0	0.20	0.0	0.0	0.0	0.0
	RSPN-25	0.0	0.30	0.0	1.5	0.0	0.0
	RSPR-01	0.0	0.05	0.0	0.0	0.0	0.0
Torina	RSPT-1	0.0	0.10	0.0	0.0	0.0	0.0
	RSPT-2	0.0	0.10	0.0	0.0	0.0	0.0
	RSPT-6	0.0	0.25	0.0	1.0	0.0	0.0
Mustard	RSPR-01	0.0	0.20	0.0	0.0	0.0	0.0
	RSPR-03	0.0	0.20	0.0	0.0	0.0	0.0
	RSPR-69	0.0	0.20	0.0	0.0	0.0	0.0
Oats	Sabzar	0.0	0.0	50.0	50.0	0.0	0.0
Total		105.0	126.5	250.0	252.5	200.0	250.0

Table 4: Quality Planting Material produced in 2018-19 (in numbers)

Crop	Production Nos.	Crop	Production Nos.
Planting material		Vegetable Crops Seeds/ Planting material	
<i>Fruit crops</i>		Knol khol (seedling)	30000.0
Litchi	278.0	Bottle gourd (seedlings)	23000.0
Mango	879.0	Bitter gourd (seedlings)	18000.0
Walnut	03(root stock)	Cucumber (seedlings)	130000.0
Peach	247.0	Tomato (seedlings)	65000.0
Plum	81.0	Brinjal (seedlings)	10,000.0
Pomegranate	58.0	Broccoli (seedlings)	20000.0
Pear	6.0	Cauliflower (seedlings)	30000.0
Custard apple	87.0	Chilli	5000.0
Beal	40.0	Exotic Vegetable	10000.0
Jack fruit	41.0	Coriander seed	100 gm
Pecan nut	2000.0	Marigold seedling	5550.0
Strawberry	82000.0 (runners)		
Guava	439.0		
Apple	284.0		
Apricot	02.0		
Citrus	2604.0		

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