

**GOVERNMENT OF INDIA
AGRICULTURE
LOK SABHA**

UNSTARRED QUESTION NO:5613

ANSWERED ON:28.04.2015

DEVELOPMENT OF HYBRIDS VEGETABLES AND FRUITS

Dhurve Smt. Jyoti

Will the Minister of AGRICULTURE be pleased to state:

- (a) whether the Government has any technology to develop various varieties of hybrids vegetables and fruits with potential for more productivity as well as resistance against insects and diseases;
- (b) if so, the details thereof;
- (c) whether farmers are required to be trained comprehensively for non- chemical bio-farming through public and private research institutions; and
- (d) if so, the time by which decision is likely to be taken in this regard?

Answer

MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (DR. SANJEEV KUMAR BALYAN)

(a) Yes, Madam.

(b) The major approaches in this direction to develop hybrids/varieties with higher productivity and resistance are:-

Wild Species:

Wild species of plants, especially of vegetables and fruits are a repository of valuable abiotic and biotic resistant genes. Technologies of introgression of desirable genes from wild species without linkage drag is possible in a number of cases. Virus resistance, insect pest resistance, heat tolerance and such other traits can be obtained from the wild species.

Marker assisted selection:

The technology of marker assisted selection (MAS) wherein desirable traits such as better quality/disease resistance/insect resistance etc. can be incorporated or introgressed and reduce time to breed a desirable variety. This is a molecular approach and is called as molecular breeding.

Biotechnological approaches:

In the ICAR, biotechnological approaches are being explored in the laboratory to enhance such traits such as vitamin A content, Iron content in fruits and vegetables, resistance to diseases and pests, heat tolerance etc.

Other technologies:

A number of technologies are available and are being explored by ICAR institutes and SAUs that can contribute for more productivity and resistance to disease and pest. These technologies such as:-

- (a) use of botanicals such as neem, pongamia etc., use of pheromones and other technologies to manage disease and pests,
- (b) a number of bio-pesticides such as use of trichoderma, Paecilomyces etc. are being promoted for managing soil pathogens, nematodes etc.
- (c) a number of crop specific micronutrient formulations (eg. Banana special, vegetable special etc.) which will enhance the yield and quality of targeted fruits and vegetables,
- (d) the development and standardizing water-fertilizer use efficiency is being carried out to enhance productivity and reduced cost of production,
- (e) ICAR has been successful in identifying rootstocks (eg. Dogridge in grapes) that will enhance the yield in salt affected dryland areas,
- (f) ICAR has standardized and developed a number of technologies for cultivation of fruits and flowers under protected cultivation, low cost polyhouses etc. that will enhance productivity while minimizing pests and disease,
- (g) ICAR has also developed technologies whereby excess moisture in selected vegetables such as tomato can be mitigated by use of grafting technology,
- (h) in addition to the above, development of tissue culture protocol for large scale supply of virus free planting material, transfer of

technology, multiplication and distribution of hybrids/varieties through seed village concept etc. is being facilitated,
(i) ICAR is also collaborating with a number of national and international organizations to introduce exotic plant material to breed varieties with superior traits, pest and disease (eg. more than 300 accessions of pomegranate were imported from USA to breed pomegranate varieties resistant to nodal blight and enhance quality production.

(c) Yes, Madam.

(d) Training is a continuous process and in ICAR regular training is imparted round the year on various aspects including non-chemical bio farming. The involvement of private sector in this regard has to be on a selective basis depending on credibility of the organization.