

The Value of Plant Breeding

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Introduction

Plant breeding uses principles from a spread of sciences to enhance the genetic potential of plants. The process involves combining parental plants to get subsequent generation with the simplest characteristics. Breeders improve plants by selecting those with the simplest potential supported performance data, pedigree, and more sophisticated genetic information. Plants improvement for food, feed, fiber, fuel, shelter, landscaping, eco-systems services that comprises the many of the human activities.

Plant breeding provides an opportunity for the geneticist to make the amendments in their genome which would lead to the well growth and production of varied hybrids that would be beneficial to the food consumption for the human beings. Thus, can be aimed by the selection of the plants species which are favorable to the human kind by economically wise as well as aesthetically wise, and this can be achieved initially by controlling the mating of the individuals and then by evaluating the desirable plant progeny. The process of plant breeding would lead to the change in the genetic makeup of the individuals which would ultimately bring the changes in the whole plant population in such a way that the previously existing genetic makeup would drift off.

The plant breeders depend on the ideal plant for its maximum number of desirable characteristics in their hybrids. The most desirable characteristics considered by these plant breeders are resistance to diseases and insects; tolerance to heat, soil salinity, or frost; appropriate size, shape, and time to maturity; and many other general and specific traits that contribute to improved adaptation to the environment, ease in growing and handling, greater yield, and better quality. The breeder considers the aesthetic appeal for its horticulture plants. Breeder can focus its attention in any one of the above characteristics but it should take in the consideration of the traits of plant that would be fulfilling the the purpose of its breeding. Plant breeding has proved to play the major role in promoting global food security, and making the staple crops to tolerate the extreme weather conditions associated with global warming, such as drought or heat waves.

The aim of plant breeding that needs to be bold is to increase the yield of the desired plant population for the benefit of the human kind which can be brought about by the selection of the morphological variants. For example, the selection of the dwarf and early maturing variants of rice which results in the greater yield of the grain and due to its ability to mature faster it frees the cultivation land faster thus; giving the enough time for the land to gets its fertility faster as well.

The one of the other way to improve the yield of the desired plant population is to make the plant population resist to diseases and the pests. However, it has been seen that in many cases the yield of the plant is been improved only when there is an achievement in the developing the resist against the diseases. The most considered way of improving the resistant varieties is to stabilizing the effects on the production and to steady the food supplies. Varieties tolerant to drought, heat, or cold provide the same benefit.

The importance of a plant can be enhanced by the use of plant breeding techniques which would surely lead to the nutritional property of the plant. One

of the well-known examples of the plant breeding is the development of the breed of the corn (maize) population having higher level of lysine in it, this is practiced by those breeders belonging to the counties which consider the maize as their staple food, thus, improving its nutritional qualities. The term "bio fortification" is not the new term used in the plant breeding system; they are the techniques which includes the changes that are made genetically within the plant crop as to increase its nutritional value as well as to embrace it in the coming generations.

The genes which are responsible for the desired characters of the plant are to be considered without causing any damage to the integrity of the remaining genes. Genes who are considered for the bio fortification are mostly involved in expressing the discontinuous, or qualitative. Some of the examples are the starchy versus sugary kernels (characteristic of field and sweet corn, respectively) and determinant versus indeterminate habit of growth in green beans (determinant varieties are adapted to mechanical harvesting). These kinds of differences can be observed easily and can be examines quickly too. Expression of the traits remains the same regardless of the surrounding in which the plant is grown which can be termed highly as heritable.

The benefits of superior new varieties obviously can't be realized until sufficient seed has been produced to allow commercial production. Although the primary function of the plant breeder is to develop new varieties, breeders usually carry out an initial small-scale seed increase. Seed thus produced is called breeders seed. The next stage is that the multiplication of breeders seed to supply foundation seed. Production of foundation seed is typically administered by seed associations or institutes, whose work is regulated by government agencies. The third step is that the production of certified seed, the progeny of foundation seed, produced on an outsized scale by specialized seed growers for general sale to farmers and gardeners. Certified seed must be produced and handled in such how on meet the standards set by the certifying agency (usually a seed association). Seed associations also are usually liable for maintaining the purity of latest varieties once they need been released for commercial production.

Conflict of Interest

We have no conflict of interests to disclose and the manuscript has been read and approved by all named authors.

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