

# Hunting of Treasures in the Wild.....

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Searching for the food and hunting was not an easy task for our ancestors, so they started collecting the seeds of some edible plants and re-grew them at convenient places like river banks where they got maximum yield. The earlier domestication began at the 'fertile crescent', a crescent shaped fertile area between Tigris and Euphrates rivers. There were eight crops grown initially (called as the 'founder crops') including flax, emmer wheat, einkorn wheat, barley, lentil, pea, chickpea and bitter vetch. These 'plant pets' caused the Neolithic revolution which transformed nomadic human lives to settlements which later lead to several civilizations. Our ancestors continued their selection of the 'pets' according to their own preferences. Domesticates evolved according to the characters preferred by man for their own survival.

The transition from wild forms to cultivated ones acquired them several characters known as 'domestication syndromes' that distinguish the cultivated from the wild. The wild forms were preserved in the undisturbed geographical regions with their typical characters with wide variability, where the cultivated forms evolved almost alike with preferable traits.

We consumed the cereals, pulses fruits etc and re-grew their seeds. When the need increased, we started improving the characters. But some of the characters were already lost during the course of evolution due to the selections made by our ancestors mainly for yield. We continued growing the crops giving them all the resources, protecting from all the hurdles and they gave us what we needed- the food, clothes and shelter. But due to our continuous and intense caring, they forget to search for the nutrients by themselves; they forget to fight against the stresses like pests, diseases,

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water scarcity etc. They became the well behaving lazy pets of humans. They forget to enrich themselves with the nutrients and concentrated on 'how they can satisfy humans with their yield'. In this age of uncontrollable climate change, they are trying hard to survive and meet our demands. The plant scientists are searching a way to help them. How the plants can regain their variability lost during the path of evolution and domestication?? The only way is to search for their wild relatives or the 'wild cousins' of the cultivated plants in which the characters are still preserved in its original form. As a plant breeder, I also wanted to help them to regain the variability...

While entering into the world of crop improvement with limited knowledge in research, I was introduced to these 'wild guys' by Dr Sarvjeet Singh, my guide for research in Punjab Agricultural University during 2014-16. He was extensively working on utilizing the untamed cousins of chickpea to improve the characters of the cultivated ones. The winter of 2014, I was given the seeds of the parents and the progenies of the crossing work initiated by my advisor. It was hard to believe that, those rough, black stone like seeds of wild relatives can create wonders. The progenies or the babies were having the seeds with wide variability some were like wild, some were like the cultivated, some with colors and shape of the father with skin of their mother or vice versa. Taking them to the field, I was not sure whether they can develop as plants... to my surprise, after some days, they germinated well. Like the variations present in the seeds, there were variations in the field also. It was not easy dealing the wild or half wild guys. I had to work hard to know their characters. They flowered at different times, some were short, some were heightened... while some guys were standing erect, and some were lying on the ground. I marked each one and observed their characters. While discussing with my guide who knows well about the 'babies' with whom I was dealing with, he said "we should tame the more wild ones in the field". The only way is to cross with the cultivated or the tamed ones. But he asked me to make sure to note down the positive things in those little naughty ones. Climate in Punjab was not at all predictable, it also affected the crop. Some of the plants showed the dying symptoms, which was told as wilt.... Luckily, the pathologist helped me to an extent. The climate never allowed me to relax... The rain was the next villain.

I am really a lover of rain, so as the pathogen of blight disease. It spread well in my field... I lost many lines. To my surprise, those plants I considered as wild, untamable, unacceptable-survived well in all the extremities of the climate. That was the time, I started loving them too. Even though I didn't care them much, they survived and grew well and stayed clean and green between the wilt or blight affected lines. they were small, with little leaves spreading in the ground like weeds like their wild parents... looking them carefully, I came to know that they were hardy even competing with weeds, have more branches, small but more number of flowers.

My aim was to increase the yield, and they had the capacities to contribute to the yield. They had more number of branches than cultivated and yielded more seeds per pod or the plant. To make them interesting to all, I wanted to tame them as my guide said. They should be popular for their capabilities. I started crossing, the small flowers of progenies were used to cross with the cultivated ones. The season went so fast spending with the wild. My friend from home science was totally stressed from my talks about wild chickpeas. She got familiarized with my research

more than my daily dairy. The seasons walked away and I spent much of my time in the field. The crossing of the plants back with their decent and well mannered parent was done twice to tame them well. The differences were visible in their seeds itself. They found to be more acceptable and less stone-like. Even in the field, they showed some manners. They tried to stand straight, they started mimicking their disciplined mother... but they had some qualities like their father... they were hardy, produced so many flowers, yielded more pods, more amount or weight of seeds per each plant..

There are several hidden potentials in the wild relatives of the present day crops. The plants we see as weeds may have the capacity to create wonders. So before uprooting or destroying a plant, we should think that it is a life.... It grew well facing several challenges and it may create revolution in our lives.... So if we want to improve and sustain our lives, we should respect, conserve and explore the nature and existing biodiversity.