

Short Communication

Vegetable grafting: A case study

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Grafting of vegetables began in the 1920, in Japan and Korea, using wilt resistant rootstock bottle gourd (*Lagenaria siceraria*) to graft watermelon (*Citrullus lanatus*). Since then tremendous work has been done in the field of vegetable grafting, this process is now common in Asia, parts of Europe and Middle East. In Japan and Korea most of the cucurbits and tomatoes grown are grafted. In the central part of India, states like Chhattisgarh, wilt and nematode are major problems for cultivation of Solanaceous crops like tomato (*Solanum lycopersicum*), brinjal (*Solanum melongena*), etc.

We were working in this field after visiting AVRDC (Taiwan) in 2003. We tried various rootstocks and got good result with *Solanum torvum* (seeds received from vegetable department, IARI, New Delhi). As it showed very good resistance to bacterial wilt (*Ralstonia solanacearum*) and root knot nematode (*Meloidogyne incognita*), which are the major problem in Bastar area of Chhattisgarh. Hence, we started using it as the rootstock and grafted (using silicon tube) the preferred varieties/hybrids of that area. In 2009, we started commercial vegetable grafting, and supplied the seedlings to Bastar farmers. The farmers over there got very good production with the mortality rate of only 1%. The demand of grafted plants increased especially of tomato, watermelon, tinda (*Citrullus vulgaris*) and Shimla mirch/ sweet pepper (*Capsicum annum*). Future prospects of grafted plants are very bright and we are making sincere efforts to make the plants available to the farmers of that area so that they can successfully cultivate vegetables. To achieve the target of supplying grafted plants to the farmers, we use different grafting methods. We use clips, silicon tubes to join the rootstocks and scion. After grafting, plants are placed in healing chamber, where 25-32 °C temperature and 85-100% RH is being maintained along with complete darkness for first 3-4 days, and thereafter light increased gradually. After one

week in healing chamber, it takes 7 days more for hardening, and then the grafted plants are transported to farmers' field.

Success story of a small farmer:

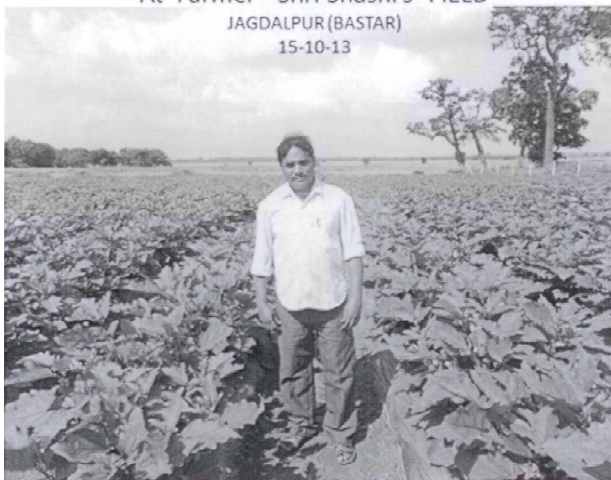
Name of farmer	: Shashi Das
Address	: Village-Awarabhata, Distt. - Bastar, Chhattisgarh
Area under grafted brinjal	: 0.69 acre
Date of transplanting	: 18 th August 2013
Variety	: VNR-212
Harvesting started	: 13 th October 2013
Total harvest	: 103.5 tonnes
Yield potential	: 150 tonnes/ha
Total cost of cultivation	: Rs. 325000.00
Average rate	: Rs. 7.5/kg
Gross income	: Rs. 776250.00
Net profit	: Rs. 451250.00

Based on the performance, it can be concluded that vegetable grafting is beneficial to overcome the soil borne diseases. From this grafting technique, farmers are taking good yield and improve their standard of living. It is an environmental friendly technique, in which no chemical treatment of the sick soil is required.





GRAFTED BRINJAL VNR – 212
At Farmer - Shri Shashi's FIELD
JAGDALPUR (BASTAR)
15-10-13



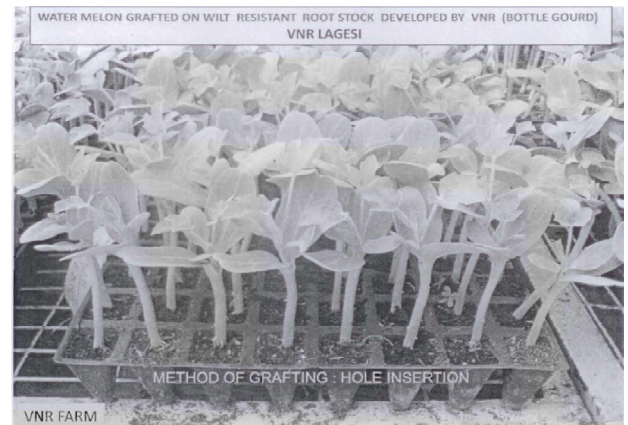
GRAFTED TOMATO SEEDLING FOR JAGDALPUR (BASTAR) FARMERS – 25-1-14



Grafted tomato seedling for Jagdalpur (Bastar) Farmers (25.02.2014)



Tinda grafted on Fusarium wilt resistant rootstock VNR Lagesi (Bottle gourd) by VNR Seeds



Watermelon grafted on wilt resistant root-stock VNR Lagesi (Bottle gourd) by VNR seeds