

Survey selection and evaluation of walnut germplasm in district Pulwama (J & K) India

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ABSTRACT

Survey, selection and evaluation of walnut types was conducted in high altitude areas of Shopian J&K. Twenty two walnut samples were collected from walnut growing areas of Shopian. Walnut samples were collected from for evaluation of nut and kernel characteristics. The evaluated with reference to shelling percentage which ranged between 40.32 and 69.44. Considering the overall nut and kernel characteristics, selection live wsB1, wsB2, wsB3, wsB4, wsB5, wsB6, wsB7, wsB8, wsB9, wsB10, wsB11, wsB12 were found to hold promise with respect to various quality parameters. These selections are recommended for commercial propagation.

Key words : Walnut, Kernel percentage, Quality.

INTRODUCTION

The walnut is grown extensively in almost all the temperature countries where summer is not too cool. However, the major walnut exporting countries are USA, China, France, Italy, and Turkey. In India. Jammu and Kashmir is participant walnut growing stage having monopoly in the production of export quality nuts. The wild seedlings of walnut have been found growing in vase region right from the Carpathian Mountains in Eastern Europe, across Turkey, Iraq and Iran. Afghanistan to the northwestern Himalayas (Wood roof, 1979; ford, 1975; Serr, 1969). The J&K state not only is major producer of walnut in India. but in fact producer the entire export quality walnut in country. Some selections made from this large gene pool on the basis nut and kernel qualities (Bhat *et al.*, 1992).

Hence, the present survey programme was under taken in different area of Shopian high altitude areas of J&K state India. The survey work was initiated in year 2003 and samples of fruit obtained from these area were collected. The present survey programme deals with some of the promising selections obtained due to the result of the survey work.

MATERIALS AND METHODS

In the Pulwama high altitude area of J&K, India, areas of Hearpora, Nilser, Navidgam, Pahnoo village, Keller, Shirmal, Balpora village, Nahee Basti village Aglar etc. about 122 trees were surveyed and out of this 12 seedlings trees found to bear good quality walnuts. The samples for the study of nut and kernel characters were harvested, hulled, washed and air-dried. The samples size for recording all physical characters consisted of 25 nuts. The length and width were measured with the help of vernier calliper. The nut weight was recorded with help of a tap pan balance. Shelling percentage, kernel colour and other kernel characters recorded by standard methods (Handricus *et al.*, 1985).

RESULTS AND DISCUSSION

Survey selection and evaluation of walnut type were

conducted to walnut growing areas of Shopian under high altitude conditions. Twelve walnut selection were made after physical evaluation (Table 1). The fruit and their pertinent characters of twelve samples were found having more than 50 per cent shelling percentage with good nut and kernel quality.

Selection ws 1 :

The fruit is medium, nut shape round, nut surface medium, shell colour light, shell seal intermediate, fruit length 4.03 cm dia. at suture 3.80 cm., dia. at cheek 3.90 cm, nut weight 13.2 gms, kernel fill intermediate and shelling percentage is 50.90 per cent.

Selection ws 2 :

Nut shape round, nut surface medium, shell colour light, shell sheal strong, fruit length 4.03 cm, dia. at suture 3.65 cm, dia. at cheek 3.80 cm, nut weight 21 gms and shelling percentage is 50.47 per cent.

Selection ws 3 :

The fruit is medium, nut shape round, nut surface medium, fruit length 3.03 cm, dia. at suture 3.70 cm, dia. at cheek 3.21 cm, shell colour light, shell seal intermediate, shell strength intermediate, and shelling percentage is 53.33 per cent.

Selection ws 4 :

Fruit length 3.30 cm nut surface smooth, dia. at suture 3.40 cm, dia. at cheek 3.60 cm, shell colour light and shelling percentage is 50.90 per cent.

Selection ws 5 :

Nut length (4.40 cm), nut shape round, nut surface smooth, dia. at suture 3.50 cm, dia. at cheek 3.80 cm, shell colour is medium, shell seal weak, shell strength papery and shelling percentage is 55.71 per cent.

Selection ws 6 :

This fruit is big, fruit length 4.10 cm, nut shape round, nut

S. No.	Nut length	Nut shape	Nut surface	Dia at suture	Dia at cheek	Shell colour	Shell seal	Shell strength	Nut weight	Kernel weight	Kernel fill	Kernel shrivel	Shelling percentage
Selection W-1	4.0	1	5	3.80	3.90	3	3	3	13.2	6.6	3	2	50.90
Selection W-2	4.03	1	3	3.65	3.80	3	4	3	21.00	10.6	3	3	50.47
Selection W-3	3.30	1	3	3.70	3.21	3	3	3	12.00	6.4	3	1	53.33
Selection W-4	3.30	1	3	3.40	3.60	3	5	3	15.00	6.0	2	1	5.90
Selection W-5	4.40	1	3	3.5	3.80	3	2	1	14.0	7.8	3	2	55.71
Selection W-6	4.10	1	2	3.00	2.80	2	1	3	9.20	6.0	2	2	65.21
Selection W-7	4.40	3	3	3.73	2.70	2	3	3	16.00	9.0	2	2	56.25
Selection W-8	3.30	2	2	2.54	2.70	2	2	3	7.20	5.0	3	2	69.44
Selection W-9	4.70	2	2	3.60	3.60	2	2	3	17.00	9.0	2	2	52.94
Selection W-10	3.39	3	3	3.32	3.34	2	4	2	11.40	6.2	3	3	54.58
Selection W-11	3.19	3	3	3.31	3.30	3	4	1	17.40	9.0	2	3	51.72
Selection W-12	3.20	3	3	2.90	2.80	2	4	2	14.00	7.6	3	2	54.28

Note :

Nut shape : -1= Round, 2 = triangle. 3=broad, 4=ovate, 5 broad elliptic, Nut surface : -1 very smooth, 2=medium, 3 = rough, Shell colour grade : 1= very light 2 = light 3 = medium 4 = Dark, Shell seal : - 1= very weak 2 = light 3 = intermediate 4 = strong, Shell strength ; 1 = papery 2 = weak 3 = intermediate 4 = strong, Kernel fill : 1=poor 2= moderate 3= well, Kernel shrivel : 1 = poor, 2 = well 3 = moderate

surface medium, dia. at suture 3.0 cm, dia. at cheek 2.80 cm, nut weight 9.20 gram and shelling percentage is 65.21 per cent.

Selection ws7 :

This fruit is big, fruit length 4.40 cm, nut shape broad, nut surface rough, dia. at suture 3.73 cm, dia. at cheek 3.60 cm. Nut weight 16.00 gms. Shell seal intermediate, shelling percentage is 56.25 per cent.

Selection ws8 :

Nut shape round, the fruit is small the nut length 3.30 cm, dia. at suture 2.54, dia. at cheek 2.70 2.70 cm, shell colour light, shell seal weak, shell strength intermediate, nut weight 7.20 gms and shelling percentage is 69.44 per cent.

Selection ws9 :

The fruit is medium, the nut length is 4.70 cm, dia. at suture 3.60, dia. at cheek 3.60 cm. The shape broad elliptic, nut weight 17.00 gms, shell colour medium, shell seal intermediate, shell strength intermediate and shelling percentage is 54.38 per cent.

Selection ws10 :

The fruit is medium, nut length is 3.39 cm, dia. at suture 3.32 cm, dia. at cheek 3.34 cm. Nut weight 11.40 gms and shelling percentage is 54.38 per cent.

Selection ws11 :

The nut shape is round, the nut shape is rough, nut length 3.19 cm, dia. at suture 3.31 cm, dia. at cheek 3.30 cm. Shell seal strong, nut weight 17.40 gms, and shelling percentage is 54.38 per cent.

Selection ws12 :

The fruit is small but attractive, nut length 3.20 cm, nut shape round, and nut surface rough. dia. at suture 2.90 cm, dia. at cheek 2.80 cm. Shell colour light, shell seal

strong, kernel fill well, nut weight 14 grams and shelling percentage is 54.28 per cent.

Out of twelve (12) genotypes of walnuts studied some are big, medium, small and attractive fruit colour. Some selection found outstanding due to properly soft and intermediate shell. All these above genotypes are recommended for commercial plantation of J&K state India.

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