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THE USE OF THE SAND CHERRY FOR STOCKS.

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During the past few years the use of the Sand cherry (*Prunus pumila*), as a stock for the cherry and plum, has been much discussed, but as yet we have had no convincing experience favorable to its use in cherry propagation. But in Utah and in various parts of the prairie States we have plum trees on this stock of several years' growth, which favor the belief that our cultivated varieties will unite perfectly with its wood, come into bearing earlier, and become dwarfed in size of tree.

With a view to more exact conclusions we grew, in 1892, about five thousand stocks from seed gathered in northwest Nebraska. The seed was washed from the pulp, dried for three or four days in the shade, mixed with sand in boxes, and put out for winter freezing. The seedlings made a fine stand and their growth the first season was about equal in height and diameter of stem to our seedlings of native plum. In the fall of 1892 we took up the largest of the seedlings for crown-grafting, leaving the others for budding.

RESULTS OF CROWN-GRAFTING.

PLUM.

*Long Blue.* (No. 20 Vor.) Russian. Of 75 side-grafts, 50 grew, or 66.6 per cent. Growth poor and slender, compared with those worked on native plum roots. Height, from 7 to 16 inches, branched; average, 10 inches.

*Wyant.* Native (*Prunus Americana*). Of 290 side-grafts, 120 grew or 41 per cent., about as thrifty as those on native plum roots. Height, 7 to 34 inches; average, about 18 inches.

*Pottawattamie.* Native (*Prunus chicasa*). Of 194 side-grafts, 63 grew or 32 per cent. Height, 10 to 28 inches, averaging about 18 inches; strongly branched.
Ogon. Japanese. Of 79 whip-grafts, 31 grew or 39 per cent. Height, 8 to 21 inches, averaging about 12 inches.

Of 79 side-grafts, 43 grew or 54 per cent. Tallest, 23 inches; average, about 16 inches, branched.

Early Red. Russian. Of 390 whip-grafts, 190 grew or 48.7 per cent. Height, 7 to 27 inches; average, about 12 inches, much branched.

Of 427 side-grafts, 293 grew or 68.6 per cent. Average height, 12 inches, much branched.

The relative growth when side-grafted and whip-grafted agrees with our former experience in grafting the stone fruits.

PEACH.

Of 56 side-grafts of Bokara peach on this stock, but one grew. Height, 10 inches.

CHERRY.

Bessarabian. Of 335 side-grafts, only three grew. Average height, 12 inches.

Strauss Weichsel. Of 260 side-grafts, only one grew. Height, 11 inches.

Lutovka. Of 152 side-grafts, only one grew. Height, 16 inches.

Brusseler Braune. Of 255 side-grafts, all failed.

SUMMARY.

As our crown-grafts of cherry on Mazzard gave an unusually good stand the past year, and also our plum grafts on native stocks gave a good stand, we may conclude that the Sand cherry is not a desirable stock, or else it needs special management and treatment which we do not as yet understand. This may easily be possible as our prior experience in budding the Sand cherry was not a success, while this year it was good for the reason, perhaps, that we budded earlier in the season.

RESULTS OF BUDDING.

PLUMS.

Early Red. Russian. We began budding Sand cherry stocks July 15. Of 130 buds inserted, 14 failed to unite. In this case the budding was done too early. Seven of the
buds started growth. The stock was cut off above one of the buds and it attained a height of 10 inches. The starting buds on those not cut off merely formed a tuft of leaves, or made a growth of from 2½ to 11 inches; average, 5 inches. We found it necessary to cut the second tying, and when examined October 11, the growth had extended on both sides of the shield, showing considerable increase in size of stem after the bud was inserted.

Richland. European. Of 143 buds, inserted July 17, only four failed to unite.

Leipsic. (No. 113 Riga.) Russian. Of 47 buds inserted July 22, all united.

Minnesota. A Swedish variety from Minnesota. Eighty-one buds inserted July 18. All united.

Trabesche. Russian. Thirty buds inserted July 22. All united. One of these started and made a growth of 15 inches, without cutting off the stock.

Ungarish Prune. Imported from Russia. Of 247 buds inserted July 17, three failed to unite.

Botankin. Japanese. Of 183 buds, inserted July 17, nine failed to unite. Eleven of the buds started growth. In two cases the stocks were cut off just above the bud, August 5th; one made a growth of 15 inches, the other 4 inches. The stocks of the remaining seven were not cut off, and the buds made an average growth of 3.6 inches.

Burbank. Japanese. Of 164 buds inserted July 20, two failed to unite. Fifty-nine of the buds started growth. The stocks of 22 of these were cut off just above the bud, August 5, and the buds made an average growth of 4.6 inches. The stocks of the remaining 37 buds were not cut off, and the buds made an average growth of 10.22 inches. The excitability of the buds of these two Japan plums is worthy of note.

Wyant. Native. (Prunus Americana.) Of 487 buds inserted July 19, two failed to unite. The union seems better than with any of the European plums.

AUGUST BUDDING.

The sprouts that came up from the stocks where the root-graft failed, were budded about the middle of August. Buds
of Trabesche, De Soto, Wolf, Milton and other sorts were inserted and have made a good stand. This late budding is suggestive, as the sprouts were all of this season's growth and were in an excitable growthy condition when the bark on last season's wood would not raise.

**CHERRIES.**

*Bessarabian.* Of 194 buds inserted July 21, nine failed to unite. Seven of the buds started but made no extension of growth. The union is not perfect, the edges of the shield being inclined to roll back.

*Sklanka.* Of 262 buds inserted July 21, ten failed to unite. The edges of the shield roll back less than with Bessarabian.

*Yellow Glass.* Of 54 buds inserted July 22, all united. A good union, appearing to indicate that the sweet cherries will make the best union with this stock.

*Shubianca.* (6 M.) Of 143 buds inserted July 22, only one failed to unite. Union good.

*Shubianca.* (6 M.) Of 107 buds inserted July 24, three failed to unite. Union good.

*Early Morello.* (No. 23 Orel.) Of 146 buds inserted July 24, three failed to unite. Union good.

The Sand cherry stock is not as favorable for rapid work as the Mahaleb on account of its numerous branches close to the ground. As it is a surface rooter, the remedy of low budding is not practicable.