

Rotyp, a Patented Apple Stock from Holland

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Rotyp is an apple rootstock patented in Holland as "CN IX RG." Rotyp is being introduced to the American nursery trade through Traas Nursery Ltd. of British Columbia.

This rootstock has not been tested in America as yet and has had very limited trial in Europe. The information below is taken from the patent description of the originator, W. J. Robijn of Holland, and from correspondence with G. S. Roosje, Director of the Research Station for Fruit Growing at Wilhelminadorp. It should be noted that, although the variety was tentatively selected 20 years ago, no experimental plantings were made until 1960.

1. Size Control: Mr. Robijn originally selected this stock on the assumption that budded fruiting trees would be slightly more vigorous than on E. M. IX. However, data from Director Roosje (below) indicate that Rotyp is about the same as E. M. VII in tree size control.

2. Winter Hardiness: There has not been a "test winter" in the Netherlands since Mr. Robijn first observed Rotyp, so its low-temperature tolerance is not known. Whether Rotyp causes the scion variety to harden-off early in the fall, as does M. IX, has not been observed.

3. Disease Resistance: Collar rot on rootstocks is virtually unknown in the Netherlands; the disease seldom attacks varieties other than Cox's Orange Pippin. Rotyp seems to have a measure of resistance to powdery mildew.

4. Anchorage: Roots are less brittle than those of M. IX and less direct breakage is anticipated. However, since all Dutch trees are staked, we have no real information on Rotyp's anchorage.

5. Fruit Size and Color: Roosje has "the impression that there is no significant difference in fruit size and quality (color) of Golden Delicious on M.26 and M. IX, but fruit size and color seem less good for fruits from trees on Rotyp."

6. Production Efficiency: One index of the efficiency of a stock is the "fruit/wood ratio." In effect, this figure describes where a tree is putting the sugars produced by photosynthesis—into fruit or into woody growth. The data in Tables 1 and 2 were derived from a report by Roosje on trials at the Wilhelminadorp station and the experimental farm at Horst.

Director Roosje's data indicate that, at least under his conditions, Rotyp exerts somewhat less size control than does M.26, and scion varieties are far less productive during the early years. The efficiency of Rotyp is uniformly low.

Director Roosje concludes: "so far we do not see any reason to stimulate the use of Rotyp under our conditions."

Trials of this stock are underway in New York at the Geneva station and in Monroe County. The evidence now on hand does not suggest that Rotyp will prove superior to other stocks in its size class—M 26, MM 102, and EM VII.

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Table 1. Trial at Wilhelminadorp Research Station for Fruit Growing. Trees planted 1960/61 in marine loam. Figures are means of 12 one-tree plots.

Scion Variety:	Golden Delicious			Cox's Orange Pippin		
Rootstock:	M.IX	M.26	Rotyp	M.IX	M.26	Rotyp
Pounds of fruit/ tree, 1964-67	52.7	75.7	63.8	44.1	72.3	46.7
Trunk Circumference, 1966-67, inches	5.2	7.0	8.2	5.8	7.7	8.3
Fruit/wood Ratio (lb./sq. in.)	1.94	2.42	.95	1.32	1.28	.82

Table 2. Trial at Horst Experimental Farm. Trees set in 1963 in sand.

Scion Var.;	Gold. Del.			James Grieve			Stark Earliest			Melrose		
Rootstock:	M.IX	M.26	Rotyp	M.IX	M.26	Rotyp	M.IX	M.26	Rotyp	M.IX	M.26	Rotyp
Pounds of Fruit	75.9	100.5	83.3	27.8	33.1	19.6	37.9	44.8	47.6	49.2	53.7	44.6
Trunk Circum.	5.9	7.3	7.5	5.5	6.7	7.2	6.1	7.1	7.9	5.0	7.4	8.3
Fruit/Wood	2.18	1.90	1.48	.92	.75	.38	1.01	.89	.76	1.97	.98	.65

Differences in Fruit Shape, Quality and Yield Between Standard Golden Delicious and a Spurred Mutation of Golden Delicious

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The tendency to heavier bearing per unit tree size of spur type apple strains relative to non-spurred ones, has led to extensive planting of spur strains in recent years. However, it was found with Red Delicious that spur mutants also were different in several fruit characteristics (1, 2, 3). The present test was done to discover differences between standard Golden Delicious and one of its spur mutants (Starkspur Golden).

Trees of both types were grown at Corvallis and Medford, Oregon, and fruit samples were taken at harvest in 1967 for study. The trees at Corvallis are on EM I and EM IV rootstock and those at Medford are on EM 26. Fruit shape (as length/diameter ratio) was determined, along

with flesh firmness, titratable acidity and soluble solids. Pressure tests were made with a Magness-Taylor tester with $\frac{5}{16}$ " head, acids in expressed juice were titrated with standard NaOH to pH 7.2, and soluble solids of the juice was read with a Goldberg T/C hand refractometer.

Total acid content was similar in both strains but shape, firmness and soluble solids were different (Table 1). There appeared to be no difference in flesh color between the two clones. This contrasts with tests on Red Delicious (1) which showed that spur mutants had greener flesh than standard varieties. By taste test, the general quality of the spur Golden was lower than that of standard Golden, presumably because of the lower

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