

Grimo Hazelnut Breeding Project Year Three

by Ernie & Linda Grimo

Our year 1 Hazelnut breeding project of 2019 (reported in issue 115 September 2019) produced 26 full sib seedlings of 'Gibson S15' x 'Gamma' and 2 full sib seedlings of 'C. heterophylla' hybrid x 'Gamma'. It was disappointing that more seed was not produced by our original breeding plan.



Tyvek isolated hazelnut

We made several changes for the second breeding year to improve our seed production. The plastic cover was replaced with Tyvek, a material that allows moisture to pass through but not pollen. Since hazelnuts are not self-fertile, we did not remove the catkins from the breeding trees. We decided to use a brush to apply the pollen to the flowers when they were receptive rather than the air blast original idea. We also covered the 5 'Gamma' trees and 4 partner trees separately rather than together as in the original plan. These changes resulted in a much more successful year 2 project.

We obtained the following number of seed from the year 2 crosses. They are stored in moist peat moss in plastic bags in a refrigerator in an insulated barn to stratify them. We did not separate the nuts that appeared empty. That figure could be as high as 30%. Numbers may be higher than normal because of the pollinizing conditions.

'Gamma' x 'C. heterophylla' hybrid -1 nut (poor results because C. heterophylla pollen blooms very late), 'Gamma' x 'Aldara' -83 nuts, 'Gamma' x 'Northern Blais' -35 Nuts, 'Gamma' x 'Alex' -14 nuts, Gamma x Slate -32 nuts. We did not use pollen from Gibson S15 because we did not have a pollen source of it in the orchard. These crosses produced a total of 165 nuts

The reverse crosses were 'C. heterophylla' hybrid x 'Gamma' -42 nuts, 'Gibson S15' x 'Gamma' - 19 Nuts, 'Aldara' x 'Gamma' -167 nuts, 'Northern Blais' x 'Gamma' -73 nuts. These crosses produced 301 nuts. More nuts were produced on fewer trees.

The seed will be planted in May of 2021, covered with chicken wire hoops to protect the seed from wildlife and left to grow for 2 years.

For our year 3 project for 2021, we will repeat what we did in winter of 2020. We will take the same five potted 'Gamma' trees and cross them with the 3 potted layered selections and 2 orchard selections. Branches with catkins will be taken from orchard trees, placed in small containers of water in paper bags and forced inside at room temperature to release pollen. A separate brush will be used to make each of the following crosses. The pollinizers for the 5 'Gamma' trees will include 'Aldara', 'C. heterophylla' hybrid, 'Northern Blais', and possibly 'Gene', and 'Dermis'. 'Gamma' pollen will be used to pollinize the first 3 above potted trees along with 'Gibson S15'.