



Canadian Agri-Science Cluster for Horticulture 3



Update to Industry

2018-2019

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| Activity title: Development of All-Male Asparagus Hybrids with Improved Traits |
| Name of Lead Researcher: David Wolyn, University of Guelph |
| Names of Collaborators and Institutions: Mary Ruth McDonald-University of Guelph, Travis Banks-Vinland Research and Innovation Center |
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| Activity Objectives (as per approved workplan): Overall, the activity has seven objectives to be completed over five years. In 2018/19, only the breeding objective was conducted with the following components: <ul style="list-style-type: none"> • Plant breeding nursery • Identify new parents and make hybrid crosses • Plant hybrid trial • Evaluate previous hybrid trials • Produce small quantities of seed for grower strip trials |
| Research Progress to Date (use plain language): All aspects of the breeding program progressed in the 2018/19 fiscal year. Crosses for new hybrids (77) and germplasm development (58) were completed, and seed was collected from 49 superior male plants for supermale development. All will be planted in the field in the spring of 2019. New trials were planted in the spring of 2018, from crosses made in 2017; these included 70 new hybrid combinations planted in preliminary trials, and 115 germplasm crosses planted in the breeding nursery. Seed was produced of four select, new hybrids for grower strip trials. In 2018, several yield trials were evaluated, including three advanced and three preliminary. Advanced trials assess those hybrids identified as superior in preliminary trials. In the advanced assessments, several hybrids are showing commercialization potential, including UG010, UG023, UG024 and UG030. The best are improved approximately 20% for marketable yield and 15% for percent marketable yield (a measure of quality) compared to the standard, Guelph Millennium. |

In preliminary trials, the first evaluation of new genetic combinations, several hybrids showed improved traits compared to the standard. The three trials evaluated were in the first, second and third full harvest seasons. For hybrids in the second and third years of harvest, improvements for marketable yield and percent marketable yield ranged 20-40% and 12-28%, respectively, compared to Guelph Millennium.

For the newest preliminary trial in the first full harvest season, the best hybrids were improved 50-118% and 15-57%, respectively; additional harvest years are necessary to validate the magnitude of the improvements.

Overall, the breeding program has been advanced with new parental selections and hybrids for evaluation, and the identification of new hybrids improved compared to the standard, Guelph Millennium in both preliminary and advanced yield trials.

Extension Activities (presentations to growers, articles, poster presentations, etc.):

Asparagus Grower Twilight Tour – September 2018

Annual Fox Seeds Breeding Meeting – July 2018

Early Outcomes (if any) or Challenges:

Key Message(s):

Trials continue to identify new hybrids with potential for commercialization.

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