

Sweet Cherry Variety Trials on Flathead Lake



BACKGROUND

In early 2009, a number of cherry growers from Flathead Lake individually came to speak with Dr. Pat McGlynn, Montana State University Extension Agent, about challenges facing the industry. McGlynn called together a group of cherry growers, both independent and Monson Food Co-op members, to discuss the situation.

The majority of orchards around the lake are planted with Lamberts and Lapin sweet cherries. The cherries are well-suited to the Montana climate and the flavor is world renowned. More than half of the small acreage cherry growers belong to the Monson Food co-op. The co-op sends the Flathead Lake cherries to Washington for processing. In the past, Washington cherries were finished processing just as Montana cherries were harvested. However, Washington has continued to plant later varieties of cherries on higher elevations and are now harvesting at the same time as Montana's crop. Because of this, the processing plant becomes overwhelmed and Montana cherries are refused. The sustainability of the Flathead orchards has been in question.

An advisory group of Flathead Lake cherry growers was assembled. This group included independent contractors, Monson food co-op board members, organic and conventional growers. They decided that research was needed to test the new varieties of cherries that had been developed at Washington State University under Montana conditions. These varieties had been bred to be larger, firmer than, and just as delicious as the Flathead Lambert and Lapin. The timing of these cherries needed to be investigated. A later cherry would help mitigate the processing challenges of fruit sent to Washington State. Earlier cherries would help roadside stand owners compete with cherries being trucked into Montana markets from the west coast. Firmer cherries would be more suitable for international packaging and transport.



Figure 1: Flathead Lake cherry growers Bruce Johnson, Tom Lawrence and Joe Hurst join MSU Extension Agent Pat McGlynn in Prosser, Wash., to study high density production techniques. Photo by Pat McGlynn

In the spring of 2010, the group was awarded \$9,912 from the Montana Department of Agriculture (MDA) *Growth Through Agriculture Program*. This funding was for the trees and supplies to establish six research plots on grower's orchards. Additional funding of \$14,638 was given to the project from the MDA *Cherry Research and Market Development Program*. This funding allowed the project to contract with Dr. Matt Whiting, Horticulture Extension Specialist at Washington State University and to hire a part-time research technician to assist with the project for the first year. The MDA Specialty Crop Block Grant program granted the cherry research project \$29,425 to continue consultant and assistant support for two additional years. With these grants, the project had funding for three years of study.



Figure 2: Pine Dale Ruby.
Photo by Willow Drive Nursery

METHODS

Six research plots were established on Flathead Lake cherry grower's orchards in 2010. The hosts included: Dick Beighle, Gerald Bowman, Barry Hansen, Wade Rediesel, Mark St. Sauver and Louise Swanberg. An organic plot was planted in May 2011 on the Allen Rodgers' orchard.

The later varieties tested were Regina, Hudson, SR500/Pine Dale Ruby, Attika and Skeena. The earlier variety tested was Santana. Sams were being used as a pollinator for Regina. Eight trees of each variety were planted in the same sequence on the seven orchards. Glory/Goodwin was added in 2011.

Variety and Rootstock	Timing
Santina/Mazzard	8 days before Bing
Regina/Gisela 6	12 days after Bing
Attika/Mazzard	7 days after Bing
Skeena/Mazzard	12-15 days after Bing
Hudson/Mazzard	14-21 days after Bing
Pine Dale Ruby/Mazzard	21 days after Bing
Glory/Goodwin	Timing to be determined
Lapin for comparison	10-12 days after Bing

PROGRESS

In 2012, flowering data was collected every other day from late April through May. Pollination was at risk due to cool, rainy temperatures during flowering. The honey bees were unwilling to leave their hives. One weekend, the temperatures rose to 70° F and the bees managed to get the job completed.

Fruit was allowed to grow to maturity during this third year of establishment. In previous years, cherries were removed in order to force the energy into roots and branching.

The Extension office purchased a brix meter to document sugar levels in the new varieties. The first year of brix testing in the Flathead reflected the

same results as fruit grown in western states. Taste is paramount to the selection of new varieties. The goal of the project is to make recommendations based on hardness, taste, size and firmness. It is agreed that producing a larger cherry without the flavor that the Flathead is known for will not meet the criteria set by the advisory committee. Size of the initial fruit was recorded in 2012, even though it will take until the 2013 season to have full-sized cherries.



Figure 3: Linda Watters, research technician, using new brix meter to determine sugar levels in new varieties. Photo by Pat McGlynn

An annual report with 2011 data was distributed to growers at the Annual Cherry Growers meeting in March 2012. This report was also available on the Flathead Cherry Grower website to the general public and other producers. A research update was presented at the March meeting by trial participant Dr. Louise Swanberg.

A field day and research tour was held on June 28, 2012. This tour was attended by over 30 local growers and members of the Montana Department of Agriculture staff, Extension agents and administration, and media. A number of the grower hosts presented their impressions of the new cherries and the overall effectiveness of the trials.

Dr. Matt Whiting, project consultant and horticulture specialist from Washington State University, demonstrated pruning techniques and answered grower questions about new varieties at the field day. Whiting is involved in breeding and testing many of the latest sweet cherry varieties. He conducts research across the Pacific Northwest and internationally.

INITIAL FINDINGS

All of the test varieties are producing exceptionally well. All have proved to be winter hardy, tolerant of Montana's pH and quick to establish. New growth was recorded on some varieties at 6-8 feet in the second year.

Goodwin/Glory: Only five trees were available in 2009. In 2011, 20 more were planted. The 2013 season will be the first year to produce fruit. Harvest dates will be determined in 2013.

Hudson: Hudson is late cherry developed in New York. Trees should fruit in 2013. Size and timing will be recorded this year. Wholesalers claim this variety is the latest cherry on the market. Montana timing is still to be determined.

Santina: Santinas are proving to be a large, tasty, fast growing, early cherry. Trees have been exceptionally vigorous putting out 8' shoots the second year.

Attikas: Attikas are a standout for size and firmness. The cherries can remain on the tree for over a week-and-a-half once ripe and allow for delayed harvest and transportation. These cherries were measuring 9- and 10-row their first year. Data from 2013 should really demonstrate their potential.

Pine Dale Ruby: Pine Dale Ruby was a heavy producer. This variety was the latest to be picked in 2012, averaging 10 days after Lapin. The Pine Dale Ruby was heavily branched and may be extremely adaptable to the pedestrian orchard style of pruning.

Skeenas: Skeenas were a favorite for flavor and color. Size will be more accurately depicted in the 2013 season. Harvest was about 4-5 days after Lapin.

Regina: The Regina is a winner in Washington but has not proven as vigorous or productive under Montana conditions. The timing is about the same as Lapin. Pollination issues seem to be a continual challenge with this variety.



Figure 4: 2012 Field Tours. Photo by Pat McGlynn

GOING FORWARD

The Flathead Lake cherry growers were once again hit hard by the Washington State cherry industry in 2012. The Montana Lamberts were denied access to the market due to a bumper crop of cherries in the west that filled processing plants. Growers who sell to the Flathead Lake co-op are currently being encouraged to tear out Lambert trees and transition to new, later varieties. The research data from the test plots will be completed just in time to help growers decide which varieties to plant.

A second field day is scheduled for July 2013 to showcase the research plots and allow area growers to examine trees for color, size and productivity. During the field day, alternative pruning methods will be displayed that create pedestrian orchards. The Spanish Bush and KGB pruning methods will be demonstrated by Oregon State University Extension horticulture specialist Lynn Long. Pedestrian orchards allow harvest to be conducted from the ground, thus speeding up the picking process by eliminating ladders. This also provides a safer environment for workers. Dr. Matt Whiting will be available to answer grower questions on specific varieties during field tours.

New varieties and high production techniques will be instituted by the industry as early as spring 2014. A number of research participants who have seen early results are transitioning to new varieties in 2013.

The growers have taken over the management of the research plots. They will continue to evaluate and share outcomes of test varieties with colleagues in the industry and MSU Extension.

New distribution outlets and markets are being explored by a number of growers.

DESCRIPTION OF VARIETIES BEING TESTED

SKEENA™ USPP #11,392

Commercially introduced in 1997, Skeena™ is a very attractive round cherry with dark red to black color. This large, firm sweet cherry has good tolerance to splitting and is self-fertile. The tree is very productive, spreading and precocious.

ATTIKA® KORDIA



This is a late blooming cherry from The Czech Republic. It is a large, dark cherry with dark flesh. The fruit has good quality for fresh market. Fruit is firm and has a long stem.

REGINA™ USPP #11,530



Regina™ is a new variety from the Jork Experiment Station in Germany that has large, firm fruit and an exceptional tolerance to splitting.

HUDSON

Hudson is from New York. This late-season, black sweet cherry is firm, sweet, medium to large in size and crack resistant.

SANTINA™ (13S-5-22) U.S. Plant Patent Pending

Santina is an early, black cherry from the Summerland, B.C. plant breeding program. It matures about eight days ahead of Bing with a sweeter flavor than other early dark cherries. It produces good sized fruit with oval shape and bright black skin and flesh. Despite being self-fruitful, Santina does not appear to overset.

PINEDALE RUBY™ USPP #21,200



This whole tree mutation of Bing was discovered on the Wenatchee Heights. The fruit has a deep, dark red skin with dark flesh. Pinedale Ruby™ has excellent storing characteristics.



Figure 5: Cherry grower Dick Beighle in the test plot of his orchard with Angie Nelson, coordinator of the Growth through Agriculture grant program of Montana Department of Agriculture. Photo by Pat McGlynn

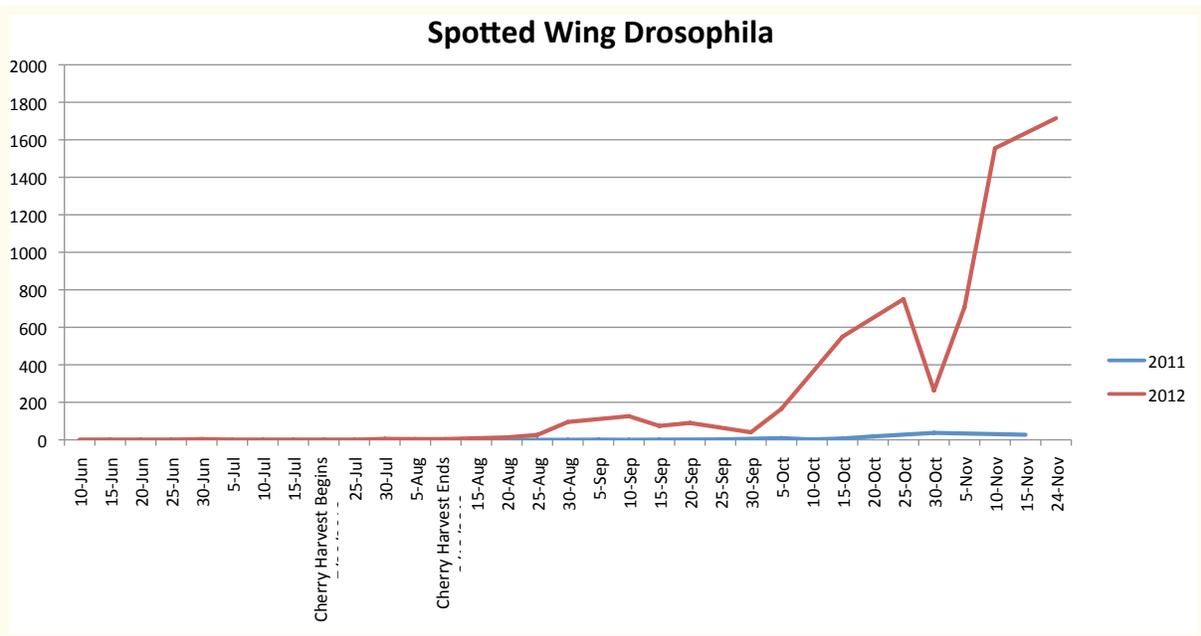


Figure 6: Spottedwing drosophilid (SWD) counts during the 2011 and 2012 growing seasons around Flathead Lake.

Update: Invasive Cherry Fruit Fly in Montana

THE SPOTTED WING DROSOPHILA (SWD), *DROSOPHILA SUZUKII*

Tom Lawrence, field researcher for the Flathead Lake Cherry Pest Control Board, first identified a single male collected in a lure trap along Blue Bay on September 1, 2011; this identification was confirmed by the Flathead County Extension Office in Kalispell, the MSU Schutter Diagnostics Lab in Bozeman, and the USDA-ARS Systematic Entomology Laboratory in Washington DC.

The 2012 data collected by Lawrence shows a dramatic increase in SWD populations along Flathead Lake. What is alarming is the jump in numbers after harvest and continuing past freezing temperatures. The need for post-harvest sprays is evident. Fruit crops that harvest later in the season including raspberries, apples, pears and plums could also be at risk from this indiscriminant, invasive insect.

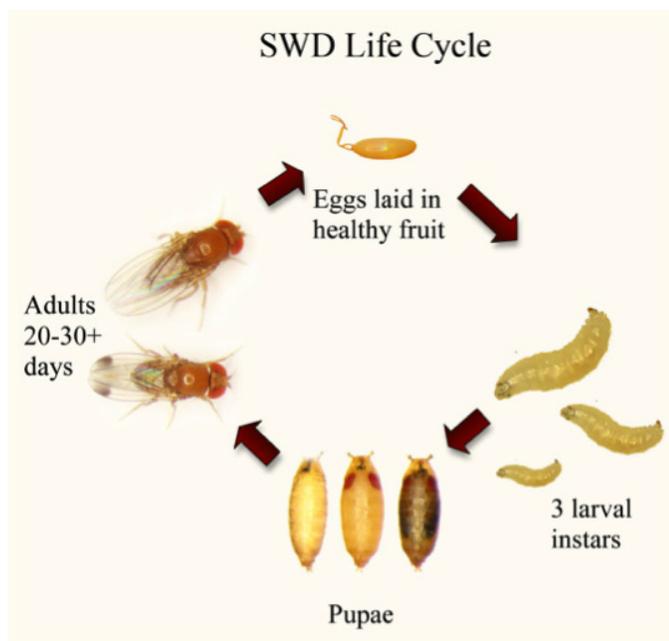
This insect was first discovered in California in 2005. It then spread quickly to Oregon, Washington, western Canada and Florida. In 2011, it was found in Montana, New York, North Carolina and Michigan. Across the country this pest has been attacking blueberries, blackberries, raspberries, grapes, strawberries and elderberries.

APPEARANCE: Adult SWD are small light brown flies (1/16th to 1/8th inches long) with prominent red eyes, similar to related fruit flies commonly found in homes. Males have a diffuse black spot near the tip of each wing; female wings are entirely transparent. Larvae are the most damaging stage. They are white, slender, and worm-like with a total body length slightly longer than that of the adults. Adult SWD feed on nectar as well as yeasts and bacteria growing on rotting fruit.

DAMAGE: Unlike most *Drosophila* species, which attack only rotting fruits, SWD attacks sound marketable fruits during the ripening process. Females cut slits in the skins of cherries and other fruits, laying eggs just underneath the skin. In cherries, the egg-laying slit leaves a small round sunken spot on the fruit. There may be multiple egg-laying slits in each cherry. Newly-hatched maggots burrow into the fruits to feed. These pests may be especially damaging to later ripening fruit such as, raspberries, blackberries, peaches and apples.

LIFE CYCLE: There are likely to be two or three generations per growing season in Montana. Based on 2010 climatic data (Oregon State Univ., <http://uspest.org/cgi-bin/ddmodel.pl?spp=swd>), the Polson area could see overwintering females become active in mid-June, with eggs being laid in July and early August.

LOOK-ALIKE SPECIES: A native species, the western cherry fruit fly, *Rhagoletis indifferens*, also infests cherry fruits during the larval stage. Adults are easy to distinguish from those of SWD. However, the larvae of western cherry fruit fly look remarkably similar to larval SWD, and are only separable by examination under magnification.





MONTANA
STATE UNIVERSITY

EXTENSION

Flathead County
800 South Main Street
Kalispell, MT 59901



Contact Us:



EXTENSION

Flathead County

PATRICIA MCGLYNN

*Montana State University Extension
Flathead County Agriculture Agent*

800 South Main Street
Kalispell, MT 59901
office: 406-758-5553

www.msuextension.org