

# **SASKATOON BERRY PESTICIDE RECOMMENDATIONS FOR MICHIGAN 2017**

## **Introduction**

This document is intended only as a guide to assist commercial growers of saskatoon berries (Juneberries) in the selection of pesticides for the 2017 growing season. The pests and diseases selected for inclusion are based on Michigan grower experience and publications from Canadian provinces. Pesticide products listed for each disease or insect are based on label information, known results with the same or closely related organism on other fruit crops in Michigan, and input from MSU specialists in entomology and plant pathology. Actual studies to determine the efficacy of pesticides against the insects and diseases of saskatoons in Michigan have not been conducted.

The format of the recommendation charts has been designed to match the system used in MSUE Bulletin E-0154, the Michigan Fruit Management Guide. We recommend that growers purchase that guide from MSU Extension to have access to the information on product properties, optimized spraying, pre-harvest and re-entry intervals, etc. Where possible, the relative efficacy of listed products is indicated by this code: e = excellent and g = good. If efficacy is not known, there is no rating letter.

Some products listed in this document may be of interest to organic growers or growers who wish to use a more environmentally friendly approach to fruit production. A "reduced-risk" (RR) designation indicates that the product has relatively low toxicity to mammals. Products listed by the Organic Materials Review Institute (OMRI) for use in organic production are noted. Restricted Use Pesticides (RUP), which are generally more hazardous to applicators or to the environment are also noted.

Brand names are provided only for reference, and no endorsement of specific products is implied. Numbers are used to reference product names to follow the same format as used in the Michigan Fruit Management Guide, MSUE Bulletin E-154. Several alternative products with equivalent active ingredients may be available; only common or representative products are given for the sake of brevity and because these have been tested for their efficacy. Be sure to check all product labels carefully to verify their legality for use on saskatoons (sometimes listed as Juneberries) in Michigan.

## **Important Comments on Pesticide Choices and Frequency of Use**

A particular pesticide product may appear several times in the tables that follow, as these recommendations present the numerous possible product choices for different pests and timings. However, product label directions and resistance management strategies may greatly limit the actual number of times a product may be used during the growing season. It is the grower's responsibility to be aware of product label restrictions (such as pre-harvest intervals, re-entry intervals, and seasonal total use limits) and to select products and application timings accordingly.

# Saskatoon Berry Pesticide Recommendations for Michigan - 2017

The code numbers following specific pests and diseases refer to the products in the boxed lists to the right. This was done to present the recommendations in the same format that is used for other fruit crops in the 2017 Michigan Fruit Management Guide, Bulletin E-0154. Note that a fungicide and insecticide may have the same code number—be sure to refer to the correct lists! If the relative efficacy of a product is known, it is indicated by letters following the product number: e = excellent g = good. If efficacy is not known, there is no rating.

<b>SILVER TIP</b>		
<b>Diseases</b>	<b>Suggested Fungicides</b>	
Entomosporium spot -----	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz)

<b>GREEN TIP</b>		
<b>Diseases</b>	<b>Suggested Fungicides</b>	
Entomosporium spot -----	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz)

<b>Insects</b>	<b>Suggested Insecticides</b>	
Tarnished plant bug -----	44e, 54g, 55g, 59e, 60e, 76g	<b>Insecticides (rate/acre)</b> 44. Danitol 2.4 EC (10.6-16 oz) RUP 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 76. Admire Pro (1-2.8 oz) RR

## FULL GREEN – TIGHT CLUSTER

Diseases	Suggested Fungicides	
Entomosporium spot	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz)
Insects	Suggested Insecticides	
Saskatoon bud moth	2, 60, 85, 88	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 6. Grandevo (1-3 lb) 43. Dipel DF (0.5-2.0 lb) OMRI 44. Danitol 2.4 EC (10.6-16 oz) RUP 46. SpinTor 2 SC (4-6 oz) RR 50. Intrepid 2 F (4-16 oz) RR 52. Esteem 0.86 EC (16 oz) RR 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 64. Entrust SC (4-6 oz) RR OMRI 76. Admire Pro (1-2.8 oz) RR 85. Delegate WG (3-6 oz) RR 88. Altacor (3-4.5 oz) RR
Leafrollers	2e, 6g, 43g, 44e, 46e, 50e, 52g, 55g, 64e, 85e, 88e	
Tarnished plant bug	44e, 54g, 55g, 59e, 60e, 76g	

## WHITE TIP

Diseases	Suggested Fungicides	
Entomosporium spot	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 65. Elevate 50 WDG (1.5 lb) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz)
Saskatoon-juniper rust	7, 12, 28, 35, 70	
Brown rot	29, 65, 67	

## WHITE TIP

Insects	Suggested Insecticides	
Saskatoon bud moth	2, 60, 85, 88	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 6. Grandevo (1-3 lb) 43. Dipel DF (0.5-2.0 lb) OMRI 44. Danitol 2.4 EC (10.6-16 oz) RUP 46. SpinTor 2 SC (4-6 oz) RR 50. Intrepid 2 F (4-16 oz) RR 52. Esteem 0.86 EC (16 oz) RR 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 64. Entrust SC (4-6 oz) RR OMRI 76. Admire Pro (1-2.8 oz) RR 85. Delegate WG (3-6 oz) RR 88. Altacor (3-4.5 oz) RR
Leafrollers	2e, 6g, 43g, 44e, 46e, 50e, 52g, 55g, 64e, 85e, 88e	
Tarnished plant bug	44e, 54g, 55g, 59e, 60e, 76g	

## TUBE OR BALLOON

Diseases	Suggested Fungicides	
Entomosporium spot	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 82. Regalia (1-4 qt)
Saskatoon-juniper rust	7, 12, 28, 35, 70	
Brown rot	29, 65, 67	
Powdery mildew	7, 12, 35, 66, 82	

Insects	Suggested Insecticides	
Saskatoon bud moth	2, 60, 85, 88	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 23. Sevin 4 F (1-2 qt) 44. Danitol 2.4 EC (10.6-16 oz) RUP 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 76. Admire Pro (1-2.8 oz) RR 85. Delegate WG (3-6 oz) RR 88. Altacor (3-4.5 oz) RR
Tarnished plant bug	44e, 54g, 55g, 59e, 60e, 76g	
Fruit-infesting weevils	2g, 23g, 44g, 55e, 59e, 60e, 76g	
Sawflies	55, 60	

## EARLY BLOOM – FULL BLOOM

Diseases	Suggested Fungicides	
Entomosporium spot	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 82. Regalia (1-4 qt)
Saskatoon-juniper rust	7, 12, 28, 35, 70	
Brown rot	29, 65, 67	
Powdery mildew	7, 12, 35, 66, 82	
Insects	Suggested Insecticides	
No insecticides are recommended during bloom in order to protect pollinating insects		<b>Insecticides (rate/acre)</b>

## PETAL FALL

Diseases	Suggested Fungicides	
Entomosporium spot	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 82. Regalia (1-4 qt)
Saskatoon-juniper rust	7, 12, 28, 35, 70	
Brown rot	29, 65, 67	
Powdery mildew	7, 12, 35, 66, 82	
Insects	Suggested Insecticides	
Saskatoon bud moth	2, 60, 85, 88	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 6. Grandevo (1-3 lb) 15. Sivanto 200 SL (7-14 oz) 44. Danitol 2.4 EC (10.6-16 oz) RUP 52. Esteem 0.86 EC (16 oz) RR 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 76. Admire Pro (1-2.8 oz) RR 85. Delegate WG (3-6 oz) RR 88. Altacor (3-4.5 oz) RR
Foliar aphids	2, 6, 15, 52, 55, 59, 60, 76	
Fruit-infesting weevils	2g, 44g, 55e, 59e, 60e, 76g	
Sawflies	55, 60	

## EARLY GREEN FRUIT

Diseases	Suggested Fungicides	Fungicides (rate/acre)
Entomosporium spot	7, 12, 28, 70, 75	7. Tilt (6 oz) 30 day PHI 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 30 day PHI 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 82. Regalia (1-4 qt)
Saskatoon-juniper rust	7, 12, 28, 35, 70	
Brown rot	29, 65, 67	
Powdery mildew	7, 12, 35, 66, 82	

Insects	Suggested Insecticides	Insecticides (rate/acre)
Saskatoon bud moth	2, 60, 85, 88	2. Exirel (10-20.5 oz) 6. Grandevo (1-3 lb) 15. Sivanto 200 SL (7-14 oz) 44. Danitol 2.4 EC (10.6-16 oz) RUP 52. Esteem 0.86 EC (16 oz) RR 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 76. Admire Pro (1-2.8 oz) RR 85. Delegate WG (3-6 oz) RR 88. Altacor (3-4.5 oz) RR
Foliar aphids	2, 6, 15, 52, 55, 59, 60, 76	
Fruit-infesting weevils	2g, 23g, 44g, 55e, 59e, 60e, 76g	
Rose chafer	2g, 44g, 54g, 55g, 59g, 60g, 76g, 85g	

## LATE GREEN FRUIT

Diseases	Suggested Fungicides	Fungicides (rate/acre)
Entomosporium spot	12, 70, 75	12. Abound (6.0-15.5 oz) RR 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 82. Regalia (1-4 qt)
Saskatoon-juniper rust	12, 35, 70	
Brown rot	29, 65, 67	
Powdery mildew	12, 35, 66, 82	

## LATE GREEN FRUIT

Insects	Suggested Insecticides	
Foliar aphids	2, 6, 15, 52, 55, 59, 60, 76	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 6. Grandevo (1-3 lb) 15. Sivanto 200 SL (7-14 oz) 44. Danitol 2.4 EC (10.6-16 oz) RUP 52. Esteem 0.86 EC (16 oz) RR 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 76. Admire Pro (1-2.8 oz) RR 85. Delegate WG (3-6 oz) RR 88. Altacor (3-4.5 oz) RR
Fruit-infesting weevils	2g, 23g, 44g, 55e, 59e, 60e, 76g	
Rose chafer	2g, 44g, 54g, 55g, 59g, 60g, 76g, 85g	

## RED FRUIT

Diseases	Suggested Fungicides	
Entomosporium spot	12, 70, 75	<b>Fungicides (rate/acre)</b> 12. Abound (6.0-15.5 oz) RR 29. Serenade Opti (2-6 qt) OMRI 35. Quadris Top (12-14 oz) 7 day PHI 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 7 day PHI 82. Regalia (1-4 qt)
Saskatoon-juniper rust	12, 35, 70	
Brown rot	29, 65, 67	
Powdery mildew	12, 35, 66, 82	

Insects	Suggested Insecticides	
Foliar aphids	2, 6, 15, 52, 55, 59, 60, 76	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 6. Grandevo (1-3 lb) 15. Sivanto 200 SL (7-14 oz) 44. Danitol 2.4 EC (10.6-16 oz) RUP 52. Esteem 0.86 EC (16 oz) RR 7 day PHI 54. Aza-Direct (1.0-3.5 pt) OMRI 55. Avaunt (3.5-6 oz) RR 7 day PHI 59. Actara (3-4 oz) 60. Assail 30 SG (2.5-5.3 oz) RR 64. Entrust SC (4-6 oz) RR OMRI 76. Admire Pro (1-2.8 oz) RR 7 day PHI if soil applied 85. Delegate WG (3-6 oz) RR
Rose chafer	2g, 44g, 54g, 55g, 59g, 60g, 76g, 85g	

## MATURE FRUIT -- HARVEST

Diseases		Suggested Fungicides
Entomosporium spot	12, 70,	<b>Fungicides (rate/acre)</b> all are 0 day PHI 12. Abound (6.0-15.5 oz) RR 29. Serenade Opti (2-6 qt) OMRI 65. Elevate 50 WDG (1.5 lb) 66. JMS Stylet Oil (3-6 qt) 67. Switch 62.5 WG (11-14 oz) 70. Pristine (18.5-23 oz) 82. Regalia (1-4 qt)
Brown rot	29, 65, 67	
Powdery mildew	12, 66, 82	
Insects		Suggested Insecticides
Foliar aphids	2, 6, 15, 55, 59, 60, 76	<b>Insecticides (rate/acre)</b> 2. Exirel (10-20.5 oz) 3 day PHI 6. Grandevo (1-3 lb) 0 day PHI 15. Sivanto 200 SL (7-14 oz) 3 day PHI 44. Danitol 2.4 EC (10.6-16 oz) RUP 3 day PHI 54. Aza-Direct (1.0-3.5 pt) OMRI 0 day PHI 59. Actara (3-4 oz) 3 day PHI 60. Assail 30 SG (2.5-5.3 oz) RR 1 day PHI 76. Admire Pro (1-2.8 oz) RR 3 day PHI foliar/7 day PHI soil 85. Delegate WG (3-6 oz) RR 3 day PHI
Rose chafer	2g, 44g, 54g, 59g, 60g, 76g, 85g	
Woolly aphids	59, 76	

## POST-HARVEST

Diseases		Suggested Fungicides
Entomosporium spot	7, 12, 28, 70, 75	<b>Fungicides (rate/acre)</b> 7. Tilt (6 oz) 12. Abound (6.0-15.5 oz) RR 28. Quilt Xcel (14-21 oz) 35. Quadris Top (12-14 oz) 66. JMS Stylet Oil (3-6 qt) 70. Pristine (18.5-23 oz) 75. Quash (2.5 oz) 82. Regalia (1-4 qt)
Powdery mildew	7, 12, 35, 66, 82	



## POST-HARVEST

Insects	Suggested Insecticides
Japanese beetle	2g, 23g, 44g, 54g, 55g, 59g, 60g, 76g, 85g
Woolly aphids	59, 76, 77

**Insecticides (rate/acre)**

- 2. Exirel (10-20.5 oz)
- 23. Sevin 4 F (1-2 qt)
- 44. Danitol 2.4 EC (10.6-16 oz) RUP
- 54. Aza-Direct (1.0-3.5 pt) OMRI
- 55. Avaunt (3.5-6 oz) RR
- 59. Actara (3-4 oz)
- 60. Assail 30 SG (2.5-5.3 oz) RR
- 76. Admire Pro (1-2.8 oz) RR
- 77. Platinum 75 SG (1.66-4.0 oz)
- 85. Delegate WG (3-6 oz) RR

## FALL DORMANT

Insects	Suggested Insecticides
Woolly aphids	76, 77

**Insecticides (rate/acre)**

- 76. Admire Pro (1-2.8 oz) RR
- 77. Platinum 75 SG (1.66-4.0 oz)

### Special Problems

A few saskatoon production sites in Michigan have been diagnosed with root diseases. The pathogenic organisms were diagnosed by MSU specialists as *Rhizoctonia* and *Phytophthora*. Both are very difficult to control, involving soil moisture management and soil-applied fungicides. There are no research data on the efficacy of fungicides against these diseases on saskatoons. Based on other crops and label information, Abound or Cannonball WP are suggested for *Rhizoctonia*, and Ridomil is suggested for *Phytophthora*. Be sure to follow label instructions carefully when using these products for root zone pathogens.

## Compiled and edited by

Erwin 'Duke' Elsner, Ph.D.  
Small Fruit Educator  
Michigan State University Extension  
520 W. Front Street, Suite A, Traverse City, MI 49684  
phone: 231 922-4822 fax: 231-947-6783 email: [elsner@msu.edu](mailto:elsner@msu.edu)

Annemiek Schilder  
Department of Plant, Soil and Microbial Sciences  
Center of Integrated Plant Systems  
578 Wilson, Rm. 105 CIPS  
Michigan State University  
East Lansing, MI 48824

Rufus Isaacs  
Department of Entomology  
Center of Integrated Plant Systems  
578 Wilson, Rm. 202  
Michigan State University  
East Lansing, MI 4824

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