



**RUTGERS**

New Jersey Agricultural  
Experiment Station

# **Addendum**

**2017**

# **New Jersey Commercial Tree Fruit Production Guide**

Rutgers Cooperative Extension  
E002

## Addendum of Changes to 2017 New Jersey Commercial Tree Fruit Production Guide

*Note: The guide is not undergoing a complete revision this year, but important changes are presented in this addendum. The changes are organized by chapter and section. Page numbers indicated with some changes refer to pages in the 2016 New Jersey Commercial Tree Fruit Production Guide. The same page numbers are preserved in the 2017 version.*

### **BE SAFE WITH PESTICIDES**

#### **“Farmworker Safety” Critical Update**

The United States Environmental Protection Agency (EPA) revised its 1992 Agricultural Worker Protection Standard (WPS) on November 2, 2015. Due to this rule change, please refer to this update in lieu of the “Farmworker Safety” information contained in the 2016 New Jersey Commercial Tree Fruit Production Guide.

Compliance requirements for agricultural employers and handler employers are effective on January 2, 2017; and later on January 1, 2018. This update provides a brief summary of EPA’s changes to the WPS, followed by information on compliance assistance resources that are already in place.

In the revised rule<sup>i</sup>, EPA **specifically** summarizes the changes to the WPS as:

- Requiring pesticide safety training at one-year intervals and amending the existing pesticide safety training content.
- Requiring recordkeeping for pesticide safety training.
- Eliminating the “grace period” that allowed workers to enter a treated area to perform WPS tasks before receiving full pesticide safety training.
- Establishing a minimum age of 18 for handlers and for workers who enter an area under a restricted entry interval (REI).
- Establishing requirements for specific training and notification for workers who enter an area under an REI.
- Restricting persons' entry into certain areas surrounding application equipment during an application.
- Clarifying requirements for supplies for routine washing and emergency decontamination.
- Requiring employers to post warning signs around treated areas when the product applied has an REI greater than 48 hours and allowing the employer to choose to

post the treated area or give oral notification when the product applied has an REI of 48 hours or less (unless the labeling requires both types of notification).

- Requiring employers to maintain and make available copies of the Safety Data Sheets (SDSs) for products used on the establishment.
- Requiring employers to provide application information and SDSs to designated representatives making the request on behalf of workers or handlers.
- Adding elements to the requirement to maintain application-specific information.
- Adopting by cross reference certain OSHA requirements for employers to provide training, fit testing and medical evaluations to handlers using products that require use of respirators.
- Requiring employers to provide supplies for emergency eye flush at all pesticide mixing and loading sites when handlers use products that require eye protection.
- Maintaining the immediate family exemption and ensuring it includes an exemption from the new minimum age requirements for handlers and early-entry workers.
- Expanding the definition of “immediate family” to allow more family-owned operations to qualify for the exemptions to the WPS requirements.
- Revising definitions to improve clarity and to refine terms.

## Compliance Assistance

EPA is providing resources to agricultural employers and handler employers to assist with compliance with the Revised WPS in conjunction with the Pesticide Educational Resources Collaborative (PERC). Key resources already developed and posted at the PERC website (<http://pesticideresources.org/>) are:

- “Quick Reference Guide to the Worker Protection Standard (WPS) as Revised in 2015”; see <http://pesticideresources.org/wps/hosted/quickrefguide.pdf>. This one-page double-sided chart outlines requirements with direct hyperlinks to the text of the regulation for each item being cited in the chart.
- “How to Comply With the 2015 Revised Worker Protection Standard For Agricultural Pesticides”; see <http://pesticideresources.org/wps/htc/index.html>. The purpose of this online guide is to help users of agricultural pesticides comply with the requirements of the revised federal Worker Protection Standard.

PERC will use email distribution lists to keep interested parties informed about new publications. PERC has developed lists for several target groups, including “Agricultural Employers and Handler Employers” to distribute notices relevant to agricultural employers and commercial pesticide handler employers, as defined by the WPS. See <http://pesticideresources.org/lists.html> to enroll in the email list(s) of your choice.

Please refer to the New Jersey Department of Environmental Protection, Pesticide Control Program for state-specific regulations and policy on the Revised WPS. In cases where state rules are more stringent than federal, the state rules will take primacy.

Rutgers Cooperative Extension Pesticide Safety Education Program (PSEP), will be providing WPS outreach to agricultural producers at conferences, meetings, its Farm Safety webpages accessed at <http://pestmanagement.rutgers.edu/>, and the Plant & Pest Advisory blog.

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<sup>i</sup> Citation for EPA's summary of the rule revisions:  
*Environmental Protection Agency. Pesticides; Agricultural Worker Protection Standard Revisions; Final Rule. 40 CFR Part 170. pp 67502 -67503. URL: [www.gpo.gov/fdsys/pkg/FR-2015-11-02/pdf/2015-25970.pdf](http://www.gpo.gov/fdsys/pkg/FR-2015-11-02/pdf/2015-25970.pdf).*

## **WEED CONTROL IN ORCHARDS**

- 1) Delete NOROSAC from throughout the text.
- 2) Table 5.4: Notice common names of active ingredient in parentheses: Alion (indaziflam) / Broadworks (mesotrione) / Sandea (halosulfuron-methyl)

### **PREEMERGENCE HERBICIDES** section:

- 1) Alion: Use 5.0 to 6.5 fl. oz./A of Alion 1.67SC / For established (bearing) apples, pears, peaches, plums, and cherries. Do NOT apply more than the amount of Alion Herbicide specified per application and per year or in a 12-month period based on soil texture, percent organic matter content, application site, and crop.
- 2) Broadworks: For established (1 year) peaches, nectarines, and plums. / Do NOT exceed a total of 12 fl. oz./A per year or in a 12-month period. Do NOT exceed 6 fl. oz./A for the first application. Do NOT exceed 3 applications per year or in a 12-month period.
- 3) Chateau: Use 6.0 to 12.0 oz./A of Chateau 51SW / Do NOT apply more than 12.0 oz./A during a single application. Do NOT apply more than 24 oz./A during a 12-month period.
- 4) Gallery: (isoxaben)
- 5) Goal: For newly planted (nonbearing) apples, pears, peaches, plums, and cherries / For established (bearing) apples, pears, peaches, plums, and cherries / Do NOT apply more than a maximum of 4 qts./A per use season.
- 6) Karmex: Do NOT apply more than 4.0 lbs./A per year. Do NOT make more than two applications of Karmex DF per year.
- 7) Matrix FNV: Use 4.0 oz./A of Matrix FNV 25WG / Do NOT apply more than 4.0 oz./A on a broadcast application basis per year.
- 8) Casoron: Use 100 to 150 lbs./A of Casoron 4G or 1.4 to 2.8 gals/A Casoron CS. Do NOT apply more than the maximum specified amount of Casoron per growing season. For newly planted (nonbearing) and established (bearing) apples, pears, and cherries.

- 9) Princep: Use 2.2 to 4.4 lbs./A of Princep Caliber 90WDG or 2.0 to 4.0 qts./A of Princep 4L / Do NOT apply more than 4.4 lbs./A Princep Caliber 90 DG or 4 qts./A Princep 4L per calendar year. Do NOT apply more than once per calendar year.
- 10) Prowl: Use 2.0 to 4.0 qts./A of Prowl H<sub>2</sub>O 3.8AS / Do NOT exceed 4.2 qts./A of Prowl H<sub>2</sub>O per year / For established (bearing) apples, pears, peaches, plums, and cherries.
- 11) Sandea: Do NOT apply more than 2 applications or 2 oz./A per 12-month period. / For established (bearing) apples and pears.
- 12) Sinbar: For established (bearing) apples and peaches.
- 13) Solicam: For newly planted (nonbearing) apples, pears, peaches, and plums. / For established apples, pears, peaches, and plums.

## **POSTEMERGENCE HERBICIDES section:**

### **Selective**

- 1) Fusilade: Do NOT apply a total of more than 72.0 fl. oz./A per year.
- 2) Kerb: Use 4.0 to 8.0 lbs./A of Kerb 50-W / Do NOT apply more than 8 lbs./A or make more than one application per year.
- 3) Poast: Apply 1.0 to 2.5 pts./A of Poast 1.5EC / Do NOT apply more than 2.5 pts./A per application or make more than 7.5 pts./A per year.
- 4) Select: **Select 2EC/Select Max 1EC (clethodim) - 0.094 to 0.125 lbs. a.i./A.** Apply 6.0 to 8.0 fl. oz./A of Select 2EC or 12.0 to 16.0 fl. oz./A of Select Max to control... / Do NOT apply more than 16 fl. oz./A per application or 64.0 fl. oz./A per season of Select Max 1EC in established peaches. / For newly planted (nonbearing) apples, pears, peaches, plums, and cherries (Select 2EC/Select Max 1EC) / For established (bearing) peaches (Select Max 1EC). Suppress  
 "Select is currently LABELED for NONBEARING FRUIT TREES only! Do NOT apply within 12 months of harvest" and replace with "Unless otherwise stated on label, all other clethodim products are for nonbearing orchards ONLY"
- 5) Starane Ultra: Use 0.4 to 1.4 pts./A of Starane Ultra to control... / For established (bearing) apples and pears ONLY.
- 6) Stinger: Use 3.0 to 10.5 fl. oz./A of Stinger 3EC to control... /

### **Non Selective**

- 1) **Aim EC (carfentrazone-ethyl) – 0.008 to 0.032 lbs. ai/A.** Use 0.5 to 2.0 fl. oz./A of Aim 2 EC as a directed spray or as a hooded spray. Do NOT allow spray solution to contact green tissue, leaves, flowers, or fruit. Aim may be used alone or tank mixed with other herbicides; see label for tank mixing instructions. Aim controls cocklebur, pigweed, nightshade, velvetleaf, carpetweed, and spreading dayflower. Do not apply within 3 days of harvest. Apply in minimum spray volume of 20 GPA. Apply in combination with crop oil concentrate at 1% v/v (1 gal/100 gal of spray solution) or a

nonionic surfactant at 0.25%. The use of shields, such as grow tubes or paper milk cartons greatly reduces the risk of injury in young vineyards. Do NOT apply more than 2 fl. oz./A/application or 7.9 fl. oz./A/season. Do NOT make applications less than 14 days apart.

- i) For newly planted (nonbearing) apples, pears, peaches, plums, and cherries.
- ii) For established (bearing) apples, pears, peaches, plums, and cherries.

## **PEACHES AND NECTARINES**

### **Disease Control Changes**

- 1) Replace Topsin M 70WDG with Topsin M 70WSB throughout guide
  - a) Replace REI = 24 hrs. with REI = 2 days
  - b) No change to timings, rates, or PHI
- 2) Add Luna Sensation 4.2SC
  - a) Recommended timing: Preharvest fruit ripening period; alternate with different chemistry, such as DMIs (Indar, Orbit, Orius, Quash)
  - b) Rate: 5.0-7.6 fl oz./A; PHI = 1 day; REI = 12 hrs.
  - c) Maximum 4 applications / season; maximum two sequential applications
  - d) For further details, see article “New Fungicide for Peach Disease Control” in May 12, 2016 Plant & Pest Advisory Newsletter - Fruit Edition
- 3) Add Luna Experience 3.34SC
  - a) Recommended timing: Preharvest fruit ripening period; alternate with different chemistry, such as Qols (Abound, Gem)
  - b) Rate: 6.0-10.0 fl oz./A; PHI = 0 days; REI = 12 hrs.
  - c) Maximum 34 fl oz./A per season; maximum two sequential applications
- 4) Relative Efficacy of Fungicides and Bactericides (Table 6.4)
  - a) Sulfur – change efficacy from fair (++) to good (+++) for scab
  - b) Thiram 75WDG – add fair (++) rating for scab
  - c) Add Luna Sensation to “QoI + SDHI (11+7)” section - brown rot blossom blight and fruit rot – excellent (++++); scab and rusty spot – good (+++)
  - d) Add Luna Experience to new “DMI + SDHI (3+7)” section – brown rot blossom blight – excellent (++++); brown rot fruit rot – good (+++); rusty spot – fair (++); scab – poor (+)

**Insect and Mite Control Changes:**

- 1) Remove all mentions of Calypso 4F
- 2) Remove all mentions of Closer SC at Petal Fall and Shuck-Split.
- 3) Change Centaur WDG rate to 34.5 oz., REI 12h, PHI 14d
- 4) Change Closer SC rate to 1.5 – 2.75 oz.
- 5) Change Perm-UP maximum rate to 10.0 oz.

6) Add:

2<sup>nd</sup> – 4<sup>th</sup> cover on pages 74-79

Product	Scale											
Closer SC	+++ 5.75 oz.											
Venerate	+++ 2 qt											
Grandevo WDG	+++ 2 lb											
Sivanto Prime	++++ 10.5-14.0 oz.											4h 14d

7) Add:

Table 6.5 on page 91

Insecticide	JB	FT	GPA	LPTB	OFM	TABM	LR	PC	PTB	SJS	SB/TPB	BMSB
Apta	-	-	+++	-	-	-	+++	++	-	-	-	-

**SWEET AND SOUR CHERRIES**

**Disease Control Changes**

- 1) Replace Topsin M 70WDG with Topsin M 70WSB throughout guide
  - a) Replace REI = 12 hrs. with REI = 2 days
  - b) No change to timings, rates, or PHI
- 2) Luna Sensation 4.2SC
  - a) Change rate from 5.0 - 5.6 fl oz./A to 5.0 – 7.6 fl oz./A (all diseases)
- 3) Add Luna Experience 3.34SC
  - a) Recommended timing: Preharvest fruit ripening period; alternate with different chemistry, such as Qols (Abound, Gem)
  - b) Rate: 6.0-10.0 fl oz./A; PHI = 0 days; REI = 12 hrs.

- c) Maximum 34 fl oz./A per season; maximum two sequential applications
- 4) Bravo WeatherStik 6F
  - a) Brown rot blossom blight rating – change from good (+++) to fair (++) at pre-bloom, bloom, and petal fall

### **Insect and Mite Control Changes:**

- 1) Remove all mentions of Provado 1.6 F.

## **PLUMS**

### **Disease Control Changes**

- 1) Replace Topsin M 70WDG with Topsin M 70WSB throughout guide
  - a) Replace REI = 24 hrs. with REI = 2 days
  - b) No change to timings, rates, or PHI
- 2) Add Luna Sensation 4.2SC
  - a) Recommended timing: Preharvest fruit ripening period; alternate with different chemistry, such as DMIs (Indar, Orbit, Orius, Quash)
  - b) Rate: 5.0-7.6 fl oz./A; PHI = 1 day; REI = 12 hrs.
  - c) Maximum 4 applications / season; maximum two sequential applications
- 3) Add Luna Experience 3.34SC
  - a) Recommended timing: Preharvest fruit ripening period; alternate with different chemistry, such as Qols (Abound, Gem)
  - b) Rate: 6.0-10.0 fl oz./A; PHI = 0 days; REI = 12 hrs.
  - c) Maximum 34 fl oz./A per season; maximum two sequential applications
- 4) Bravo WeatherStik 6F
  - a) Brown rot blossom blight rating – change from good (+++) to fair (++) at pre-bloom, bloom, and petal fall
- 5) Add Bacterial Spot to Spray Guide
  - a) Similar to Peach Guide timings: “shuck-split” through “covers” timings
  - b) Recommended copper bactericides and rates (0.5 – 1.0 oz. MCE/A)
    - i) Kocide 3000 30DF @1.6 – 3.2 oz./A



- ii) Nordox 75WG @ 0.7 – 1.3 oz./A
- iii) Cueva 0.16F @ 25 – 50 fl oz./A

6) Note: Oxytetracycline (Mycoshield or FireLine) not available on plums.

## **APPLES**

### **Disease Control Changes**

- 1) Add Aprovia 0.83EC from “½” Green” through “Fourth Cover” timings (note high PHI)
  - a) Recommended timing: Early season for primary scab or mid-season for secondary scab, sooty blotch, and fly speck; alternate with different chemistry or protectant
  - b) Rate: 5.5-7.0 fl oz./A; PHI = 30 days; REI = 12 hrs.
  - c) Maximum 27.6 fl oz./A per season; maximum two sequential applications
- 2) Replace Topsin M 70WDG with Topsin M 70WSB throughout guide
  - a) Replace REI = 24 hrs. with REI = 2 days
  - b) Reduce rate from 1.0 – 1.5 lb/A to 0.75 – 1.0 lb/A
  - c) No change to timings or PHI
- 3) Relative Efficacy of Fungicides and Bactericides (Table 9.8)
  - a) Rally – change efficacy from excellent (+++++) to good (++++) for scab
  - b) Fontelis – change efficacy from good (++++) to excellent (+++++) for scab
  - c) Add Aprovia to SDHI (7) chemistry: scab – excellent (+++++); sooty blotch & flyspeck – excellent (+++++)

### **Insect and Mite Control Changes:**

- 1) Replace text with:  
Mating Disruption in Apples on page 146:

Codling moth (CM) is a primary insect pest in apple and is commonly referred to as the “worm in the apple”. Contamination of fruit with larvae can cause rejections. Like Oriental fruit moth (OFM), CM may be managed with mating disruption technology. Mating disruption works by reducing the chances of a female moth mating within the orchard and has no impacts on natural enemies or bees.

Several brands of mating disruption are available. All hand placed dispensers for CM must be placed in the upper third of the canopy during pink to petal fall period. This



First Cover

Product	Apple aphids	Tarnished Plant Bug	White Apple Leafhopper	Scale	REI PHI
Closer SC	++++ 1.5-2.75 oz.	+++ 2.75-5.75 oz.	++++ 1.5-2.75 oz.	+++ 5.75 oz.	12h 7d
Sivanto Prime	++++ 10.5-14.0 oz.		++++ 10.5-14.0 oz.	++++ 10.5-14.0 oz.	4h 14d

Second Cover pages 164-165

Product	Apple aphids	Tarnished Plant Bug	White Apple Leafhopper	Scale	REI PHI
Closer SC	++++ 1.5-2.75 oz.	+++ 2.75-5.75 oz.	++++ 1.5-2.75 oz.	+++ 5.75 oz.	12h 7d
Sivanto Prime	++++ 10.5-14.0 oz.		++++ 10.5-14.0 oz.	++++ 10.5-14.0 oz.	4h 14d

And insert in other cover sprays where like headings exist.

**PEARS**

**Disease Control Changes**

- 1) Add Aprovia 0.83EC to guide from “Delayed Dormant” to “Covers” timings (note high PHI)
  - a) Recommended timing: Early season for primary scab or mid-season for secondary scab, sooty blotch, and fly speck; alternate with different chemistry or protectant
  - b) Rate: 5.5-7.0 fl oz./A; PHI = 30 days; REI = 12 hrs.
  - c) Maximum 27.6 fl oz./A per season; maximum two sequential applications
- 2) Replace Topsin M 70WDG with Topsin M 70WSB throughout guide
  - a) Replace REI = 12 hrs. with REI = 2 days
  - b) No change to timings, rate, or PHI
- 3) Mancozeb 75DF at “Covers” timing
  - a) Change 6.0 lbs/A rate to 3.0 lbs/A rate for pear scab and fabraea leaf spot