



Progress Report of IR-4 Ginseng Research

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IR-4 Project Labeled Products for Ginseng

Pesticide	Pests Controlled	Product**	Use Pattern***
2002*			
Fenhexamid (FRAC 17)	Botrytis leaf and fruit blight (<i>Botrytis cinerea</i>)	Elevate 50WDG fungicide (Arysta)	1.5 lb product/A (0.75 lb ai/A); begin applications when conditions favor disease development. Retreatment at 7-14 day intervals. Max 4 apps. (max. 6.0 lbs product/A), 50-150 GPA, 0 day PHI
2003			
Fluazinam (FRAC 29)	Rhizoctonia root rot (<i>Rhizoctonia solani</i>) Alternaria blight (<i>Alternaria panax</i>) Botrytis blight (<i>Botrytis cinerea</i>) White mold (<i>Sclerotinia</i> spp.)	Omega 500F fungicide (Syngenta)	1 to 1.5 pints product/A; for control of rhizoctonia root rot use 1 pt/A beginning at transplant and then continue on a 14 day interval. For Alternaria blight, botrytis blight and white mold, use 1 pt/A beginning when the disease first appears or favorable for disease development. Repeat on a 7 to 14 day interval; 100 GPA minimum; under severe conditions use 1.5 pt/A. Do not apply more than 6 pts / growing season. 30 day PHI
2004			
Chlorothalonil (FRAC M-multi site)	Alternaria blight (<i>Alternaria panax</i>) Gray Mold (<i>Botrytis cinerea</i>)	Bravo Weather Stik fungicide (Syngenta)	2 pts product/A; (1.5 lb ai/A); Begin applications when disease first threatens, and repeat at 7-10 day intervals as disease pressure warrants. Do not use more than 6 pts product/A during each growing season; 14 day PHI
Dimethomorph (FRAC 40)	Phytophthora foliar blight and root rot (<i>Phytophthora cactorum</i>)	Forum fungicide (BASF)	6 fl oz product/A; Use before infection occurs; retreatment intervals are 7 days; do not make more than 5 applications per season; do not exceed 30 fl oz/A/growing season; 20 GPA min.; PHI 14 days
2005			
Captan (FRAC M4)	Rhizoctonia, Pythium, Phytophthora, Cylindrocarpon destructans, Botrytis	Captan Gold 80WDG (ADAMA)	Apply 3.75 lb CAPTAN 80WDG/A at 6-8 day intervals or when conditions favor disease development; 100-200 GPA (depending if foliar or drench); max. 30 lb Captan/A/year; 14-day PHI; REI 24 hrs.

Pesticide	Pests Controlled	Product**	Use Pattern***
2007			
Fenamidone (FRAC 11)	Phytophthora Root Rot	Reason 500SC (Bayer)	5.5 to 8.2 fl oz product/A; begin apps. As soon as crop and/or environmental conditions become favorable for disease development; make at 14 day retreatment intervals; do not apply more than 24.6 fl oz product/A/year; 14 day PHI; apply using ground, air or chemigation;
Thiophanate-methyl (FRAC 1)	White Mold, Rhizoctonia Root and Crown Rot, Cylindrocarpon Root Rot	Topsin M WSB fungicide (UPI) Wisconsin SLN expires 12/31/2017	For white mold and Rhizoctonia control, apply 1 lb product/A as a foliar spray at 14 day intervals For Cylindrocarpon root rot, apply 1 lb product/A as a soil drench in 100 GPA until runoff; apply at 14 day intervals; Do not apply within 365 days of harvest; do not apply more than 4 lbs product/A/year;
Boscalid (FRAC 7)	Botrytis cinerea Alternaria	Endura fungicide (BASF); can also be tank mixed with Pyraclostrobin (Cabrio)	4.5 to 7.8 oz product/A; max. 5 apps.; max. 23.4 oz/A/season; 0 day PHI; begin applications prior to disease development and repeat on a 7-14 day interval
Pyraclostrobin (FRAC 11)	Alternaria Cercospora White Rust Powdery Mildew	Cabrio EG fungicide (BASF)	8-16 oz product/A; max. 48 oz product/A/season; 0 day PHI; begin applications prior to disease development; repeat on a 7 to 14 day retreatment interval
Pyrimethanil (FRAC 9)	Alternaria blight Botrytis blight	Scala SC fungicide (Bayer)	18 fl oz product/A; begin applications as soon as crop and/or environmental conditions become favorable for disease development; repeat on a 7 day interval; do not apply more than 54 fl oz product/A; 30 day PHI
2008			
Mandipropamid (FRAC 40)	Phytophthora Root Rot	Revus, (Syngenta) Orondis Ultra B (Syngenta)	8.0 fl oz product/A; begin applications prior to disease development; apply at a 7-10 day retreatment interval; do not apply more than 32 fl oz product/A/season; 2 day PHI

Pesticide	Pests Controlled	Product**	Use Pattern***
2010			
Oxathiapiprolin (FRAC U15)	Phytophthora Root Rot	Orondis Opti A, (Syngenta) Orondis Ultra A (Syngenta)	4.8-38.6 fl oz product/A; begin foliar apps. prior to disease development; apply at a 14 day retreatment interval; for ground apps. apply at 15 GPA min.; do not exceed 77.2 fl oz product / acre/year; do not make more than 4 apps. per year; 14 day PHI
Difenoconazole +Azoxystrobin (FRAC 11, 3)	Alternaria Blight Powdery Mildew	Quadris Top (Syngenta)	10-14 fl oz product/A; begin applications prior to disease onset when conditions are conducive for disease; apply on a 7-14 day schedule; min. 15 GPA ground; apply in 0.1 to 0.25 inches/A of water for chemigation; do not apply more than 56 fl oz of product/A/year; 0 day PHI; but Aprovia Top (Benzovindiflupyr+Difenconazole) (2016) is preferred.
2011			
Metaldehyde	Slugs and snails	Deadline GT (Amvac)	Apply as soil surface treatment; broadcast by air or ground; use a band treatment between the rows after formation of edible parts; do not apply directly to edible portions of the plant; apply 20 to 40 lbs. per acre
2012			
Ethaboxam (FRAC 22)	Phytophthora Root Rot	Elumin (Valent)	Make soil spray or foliar applications; 8 fl oz product/A at a 7-10 day interval; Max 16 fl oz (0.5 lb ai)/A/year; 14 day PHI
2015			
Cyantraniliprole (IRAC 28)	Insects on the label: cotton aphid; green peach aphid; flea beetle, but not cutworms	Exirel (DuPont)	Foliar; 13.5 -20.5 fl oz product/A; min. appl. interval: 5 days; max. 0.4 lb ai/A/year of Cyazapyr or cyantraniliprole containing products; 1 day PHI

* year project initiated

** be sure to alternate FRAC classes after 1 to 2 applications with each product to ensure product longevity

***Use pattern for reference only; please consult label for additional information

IR-4 Studies Submitted / To be Submitted for Ginseng

Pesticide	Status
2006	
Moncut (Flutolanil)	Study canceled, due to analytical method issues; Need to prioritize again:07/15 HOLD UNTIL ANALYTICAL METHOD ISSUES RESOLVED (STILL AN ISSUE IN 2017)
Gavel (Mancozeb + Zoxamide)	Mancozeb labeled. Ginseng added to Zing! Label (chlorothalonil + zoxamide); label approved at EPA; still pending in CA; anticipated use of product in Sep/Oct 2017.
2008	
Fenpyrazamine (V10135)	Rule: 03/13; tolerances at 0.70 ppm; no label yet; could be labeled in 2018.
2014	
Tenet WP, Actinovate AG, Serenade Soil	Biopesticide Demonstration Program: Integrating Biopesticide into Soil Borne Disease Control for 2 year old Ginseng.(<i>Pythium</i> , <i>Phytophthora</i> , <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Cylindrocarpon</i>); Final reports submitted. -Further testing is underway in 2017

Active IR-4 Ginseng Projects

Pesticide	Status
2013	
Tanos (Famoxadone+ Cymoxanil)	<i>Phytophthora</i> foliar blight; Petition submitted to EPA 05/17; PRIA date: 09/17/18
2015	
Ranman (Cyazofamid)	<i>Pythium</i> root rot, <i>Phytophthora</i> foliar blight and root rot; All data received at HQ; estimated submission date to EPA: 02/18
2016	
Aprovia Top (Benzovindiflupyr +Difenconazole)	<i>Alternaria</i> leaf blight; Performance study completed; Lab analysis underway; estimated submission date to EPA: 10/18
Luna Experience (Fluopyram +Tebuconazole)	<i>Alternaria</i> leaf blight. IR-4 residue study only; -samples at Tifton lab; not yet analyzed; estimated submission date to EPA: 10/18

2017 Ginseng Projects

Pesticide	Comments
Isofetamid (ISK)	<i>Cylindrocarpon</i> Root Rot; key export markets include Taiwan, Chiina, Hong Kong; few products are effective against this pathogen: ISK supports residue and one more performance trial; Samples will be analyzed at MSU. Canada interest -2017 residue and efficacy study underway.