

# PYGANIC and AZERA

**Pyganic** = pyrethrin (knock down)

**Azera** = pyrethrin + azadirachtin (knock down + bounce back prevention)

**Pyrethrin** is a broad-spectrum contact killer. Extract of chrysanthemum, disrupts sodium channel. Young pests are most susceptible.

**Azadirachtin** is the active ingredient from the neem seed. It is a pest feeding-deterrent and growth-disruptor

great paper summarizing mode of actions: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0301-80592000000400001](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0301-80592000000400001)

- Improves performance against chewing insects
- Secondary antifeedant effect: physiological and hormonal imbalances which over time will result in reduced consumption.
- Reproductive suppression (reduced fertility)

## **Rates:**

Increased performance up to 32oz/acre, but not beyond.

Higher end of application rate necessary for tougher pests (especially hard to kill whiteflies, stink bugs, potato beetle and squash bugs). In general try to target the earliest (youngest) stage of these pests for best efficacy (after the egg stage). In general stink bugs are difficult to control with PyGanic.

## **Performance Considerations**

- **COVERAGE** (#1 consideration) Pyganic must hit pest in wet spray to be effective (consider increasing volume of spray, adjust pressure to sufficiently penetrate canopy but maintain product amount/acre)
- When/how was spray applied?
- Humidity? once spray dries- ineffective
- Sun? UV degrades Pyganic and azadirachtin
- pH? high pH detrimental to pyganic, ideal range: 5.5-7
- Dirty water? microbes can break down Pyganic
- Time? Did mixed spray sit for a long time in poor conditions
- With continued invasion of a given pest control can be difficult: short residual life  
e.g. cucumber beetles will continue to migrate into the field over a long period of time so controlling bacterial wilt with PyGanic would not be very effective. You will kill only those beetles that are present on the field at the time of the application so any beetles moving in the next day will not be affected.

*All the same product, just different concentrations and labeled usage*

Labels	<b>Gardening</b>	<b>Crop Protection</b>	<b>Specialty</b>	<b>Evergreen</b>
User	home growers, end user not for use on crops for sale	Commercial- professional outdoor grower	Greenhouse/indoor, nursery use	structural use (barns, dairies, poultry houses)

	<b>Py Garden (1.4%)</b>	<b>Py Crop (1.4%)</b>	<b>Evergreen (5%)</b>	<b>Py Special (5%)</b>	<b>Py Crop (5%)</b>
<b>Price/gal</b>	8oz - \$312		Pt- \$480		
Qt	\$192	\$201		\$568	\$620
Gal	\$168	\$176	\$448	\$470	\$488
Case of 4	\$165				
<b>Application rates</b>	1-2oz/gal	1-2oz/gal	1/4 – 1/2 oz/gal	1/4 – 1/2 oz/gal	1/4 – 1/2 oz/gal
<b>Diluted price/gal</b>	8oz \$2.44 - \$4.88		Pt- \$0.94 - \$1.88		
Qt	\$1.50 - \$3.00	\$1.57 - \$3.14		\$1.11-\$2.21	\$1.21 - \$2.42
Gal	\$1.31- \$2.63	\$1.38 - \$2.75	\$0.88 - \$1.75	\$0.92- \$1.84	\$0.95 - \$1.91
Case of 4	\$1.29 – 2.58				

**Diluted gallons per container:**

	No. of diluted gal from <b>1.4%</b>	No. of diluted gal from <b>5%</b>
8 oz	4-8	unavailable
Pt		32-64
Qt	32-64	128-256
Gal	128-256	512-1024

### Resistance to Pyganic:

- Primarily a consideration only when in proximity to long standing conventional producers
- Selection pressure is driven by insecticide exposure (organic products generally have very short residual efficacy so they exert minimal selection pressure).
- However, relying on a single mode of action all season long and over multiple seasons can increase the rate of resistance development in pest species that are not very mobile (do not migrate over large distances).
- Good practice to rotate spraying within a given season, Neem-Pyrethrum-Spinosad, because these active ingredients all attack different target sites. Consider the life-cycle of target pests.
- Efficacy issues are likely an issue of coverage/timing not resistance for most organic producers.

### Shelf life (Azera & Pyganic):

2 years with proper storage (dark and cool). UV will degrade as will excessive heat and cold. Opened containers should be fine especially if stored under controlled conditions

**Azera:** 1.4% Pyrethrin + 1.2% Azadirachtin

**Application rate:** 1oz – 2oz per gallon

	<b>Azera Gardening 8oz</b>	<b>Azera Gardening Qt</b>	<b>Azera Gardening Gal</b>	<b>Azera Crop Qt</b>	<b>Azera Crop Gal</b>
<b>Price/gal</b>	\$568	\$350	\$330	\$370	\$349
<b>Diluted price/gal</b>	\$4.44 - \$8.88	\$2.73 - \$5.47	\$2.58 - \$5.16	\$2.89 - \$5.78	\$2.73 - \$5.45
<b>Diluted gal per jug</b>	4 - 8	32 - 64	128 - 256	32 - 64	128 - 256

### Products are identical, just labeled differently.

Like Pyganic, **Gardening** is labeled for home use on produce not for sale, **Crop protection** is labeled for commercial certified organic growers, professional outdoor growers