Adequate Nutrient Levels from your Soil Test for Growing Giant Pumpkins

ELEMENT	MEASUREMENT
pH	7.4 to 7.8
Soluble Salts	< 1.0 at germination, 1.0 to 2.0 mid-season
Nitrates	50 ppm
Ammonium	< 10 ppm
Phosphorus	> 50 ppm
Potassium	450 – 750 ppm
Sulfur	10 to 25 ppm
Calcium	1,400 to 2,000 ppm
Magnesium	350 to 600 ppm
Zinc	2 to 3 ppm
Manganese	10 to 15 ppm
Copper	1 to 1.5 ppm
Iron	15 to 65 ppm
Boron	.6 to 1.0 ppm

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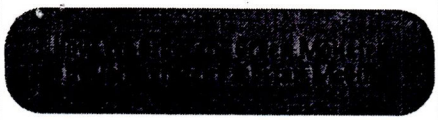
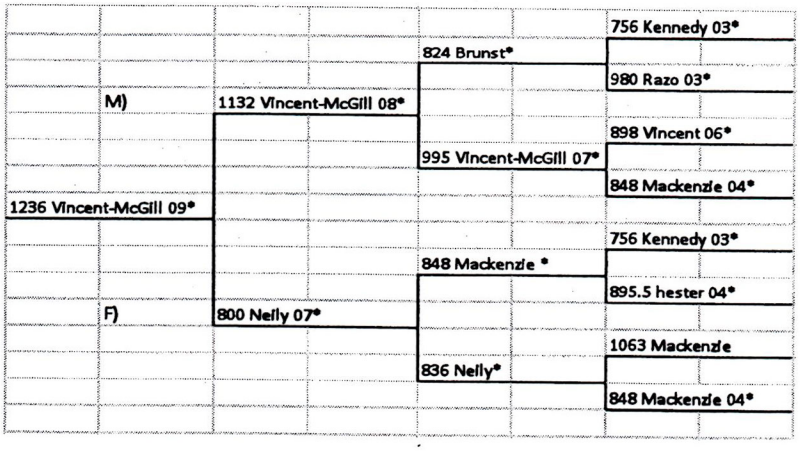




The growing of this great squash really started in August 2008. I had been closely following the grower diary of Joel Jarvis, watching his as his almost 1000 lb squash went down to a rib split! This squash had been growing on the 800 Neily 07, a seed grown by Will Neily of Paradise Nova Scotia. the seed was not listed on the AGGc, but further research showed it was out of his own 836 Neily, and crossed with the 848 MacKenzie. The 836 is 848 x 1063 MacKenzie, so the seed is almost entirely 848 MacKenzie. I knew this seed had the power to produce a World Record!

Report Date: 5/8/09

SOIL TEST REPORT

Page: 1

Sample Number	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	Sodium Na ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
S1-MP	15537	12.5	139 VH	419 VH	488 VH	460 L	7200 VH	42 L	7.7		41.3	3.0	9.3	87.2		0.4

Sample Number	Sulfur S ppm	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mS/cm	Saturation P %	Aluminum Al ppm	Nitrate Nitrogen NO3-N ppm	K/Mg Ratio	ENR	Field ID
S1-MP	104 VH	20.0 VH	33 H	53 VH	1.9 H	1.8 H		100 VH	44		0.32	112	

Patch Prep started by using a single toothed subsoiler penetrating about 24". We ripped about every 3 feet or so. We amended our 5000 ft2 patch in the fall with about 35 yards of mushroom compost and about 125 bags of leaves. The patch was first gone over with a chisel plow, then amendments spread and mold board plowed in.

To the 5000 ft2 patch we applied 35 lbs 21-0-0-24's Ammonium sulfate. 16 lbs 11-52-0 MAP with Avail (an additive to increase phosphorous availability), 85 lbs 0-0-21-11mg-21s k-mag, 125 lbs kelp meal, 100 lbs humic.

We started the 800 on April 30th, filing and soaking for about 8 hours. Seed were then placed in wet paper towels inside a Tupperware container on an old waterbed heater heating mat, set to maximum. The seed sprouted within 36 hours and was placed in 4" coco pots filled with Pomix planting medium, inoculated with RTI Mycorrhiza and JumpStart. The pots were placed inside ziploc sandwich bags to keep them from drying out and put back on the heating pad and then under grow lights, set for 12 hours on/off intervals. 4" pots were potted up to 1.5 gal pots about 10 days later.

Individual planting sites are prepared by digging a pit, about 18" deep and 3-4 feet in diameter, removing any hard panned clay and replacing with mixture of amended top soil, composted manure, mushroom compost and peat moss, mounded about a foot above grade. To the mixture, we add a few hands full of kelp meal and granular humic acid. 4x8 Hoop houses were erected over the mounds and 175w heat bulbs are placed inside to keep the seedlings warm at night.

The 800 was set out on May 20th. Plants were inoculated with a couple handfuls of RTI Mycorrhizal inoculant mixed with JumpStart. the seedling then received about 2L of 3% seaweed/ fish solution.

The plants were all slow this year due to the cold wet wether, but the 800 was one of the better plants right from the beginning. Prior to the hoop houses being removed around June 20th, the patch received an application of Roundup to control weeds. At this time we also applied a strong Admire (Merit) solution for systemic insect control.

The plant was trained in a spider pattern on a 22'x35' plot. The mound was set up 10 feet in, so that the first two secondaries could be trained back and tertiary vines allowed to grow to fill in the space. All vines were buried, except the main. Each node was inoculated with the Mycorrhiza/jumpstart combo. Also, we sprayed a fertilizer solution containing a rooting hormone on each node prior to burying. Plants were pruned so that 955 of the plant was behind the fruit. No secondaries were allowed to grow past the fruit.

We have a misting system set up, using a timer and ultra low volume nozzles, set for 5 minutes of every 15, coming on at 10:00 am and running until 5:00 pm. The system was turned on all days the temp was over 25C between June 15th and July 15th.

Foliar spraying of Neptune's Harvest seaweed commenced when the hoops were removed. This was applied as a 3% solution. I also added in pHortress for PM control and to promote flowers. This is added at about 1.5% solution.

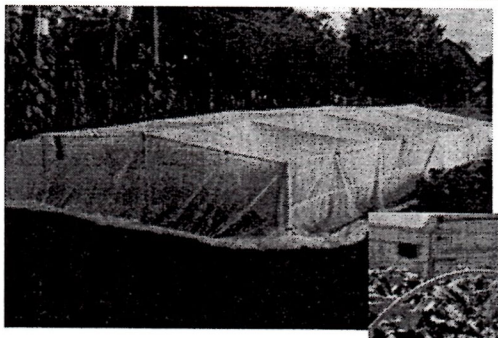
Added to that is also Matador (same as Warrior T), for insect control. This whole combination continued on 9-10 day intervals for the rest of the season.

We began to brew compost tea in Late June. We are using the Thad Starr Design actively aerated brewer. We make about 30 gals at a crack. I use about 5 cups each, worm castings and compost, 5 cups alfalfa pellets, 2 cups kelp meal, 1/2 cup granular humic acid, 2 cups molasses, 1 cup soil soup nutrient. The brew time was around 24 hours. We varied the addition of the alfalfa pellets and the brew time to try to diversify the microbes. Compost tea was applied using Whizzer sprinkler heads, one per plant, on 9 to 10 day intervals, in between foliar spray applications. In mid July, I began adding Actinovate fungicide to the tea as well as about 200 ml of FoliCal foliar Calcium.

the 1236 was pollinated on July 5th. It was the first pollination on the main vine 10 ft out. here is the growth pattern.

Day 10 23" Circ
Day 20 164.5" ott
Day 30 245" ott 318 lbs
Day 40 297" ott 555 lbs
Day 50 330" ott 756 lbs
Day 60 350" ott 900 lbs
Day 70 359" ott 970 lbs
Day 80 368" ott 1044 lbs
Day 90 375.5" ott 1108 lbs
Day 100 379" ott 1139 lbs

We did not apply any significant water until after pollination. After we would have averaged about 75 gals per plant per day, skipping rain days. All irrigation water was applied through the Whizzer sprinkler heads.



Our fungicide program consisted of alternating Headline with Nova, on the 9-10 day spray interval, along with pHortress. We applied foliar Manganese in mid July and again about 20 days later. In late August we started adding 1/2% Potassium Carbonate to the spray mixture.

The squash continued to grow steady and near the end of August we could see it was well ahead of out 1132* from the previous year at the same age. The original plan was to take this squash to Port Elgin, but it was still growing 6-7 lbs per day and we felt we could have a shot at the World Record. It was decided to hold the squash to Cornerstone.

We erected a structure and covered the plant with Remay row cover, around October 1st, with the hopes to keep it growing. Unfortunately, we had to remove he cover on Thanksgiving Sunday due to high winds. The wind went down in the night and we suffered a killing frost. The cover was re-dawned, after that but measurable growth had pretty well stopped.

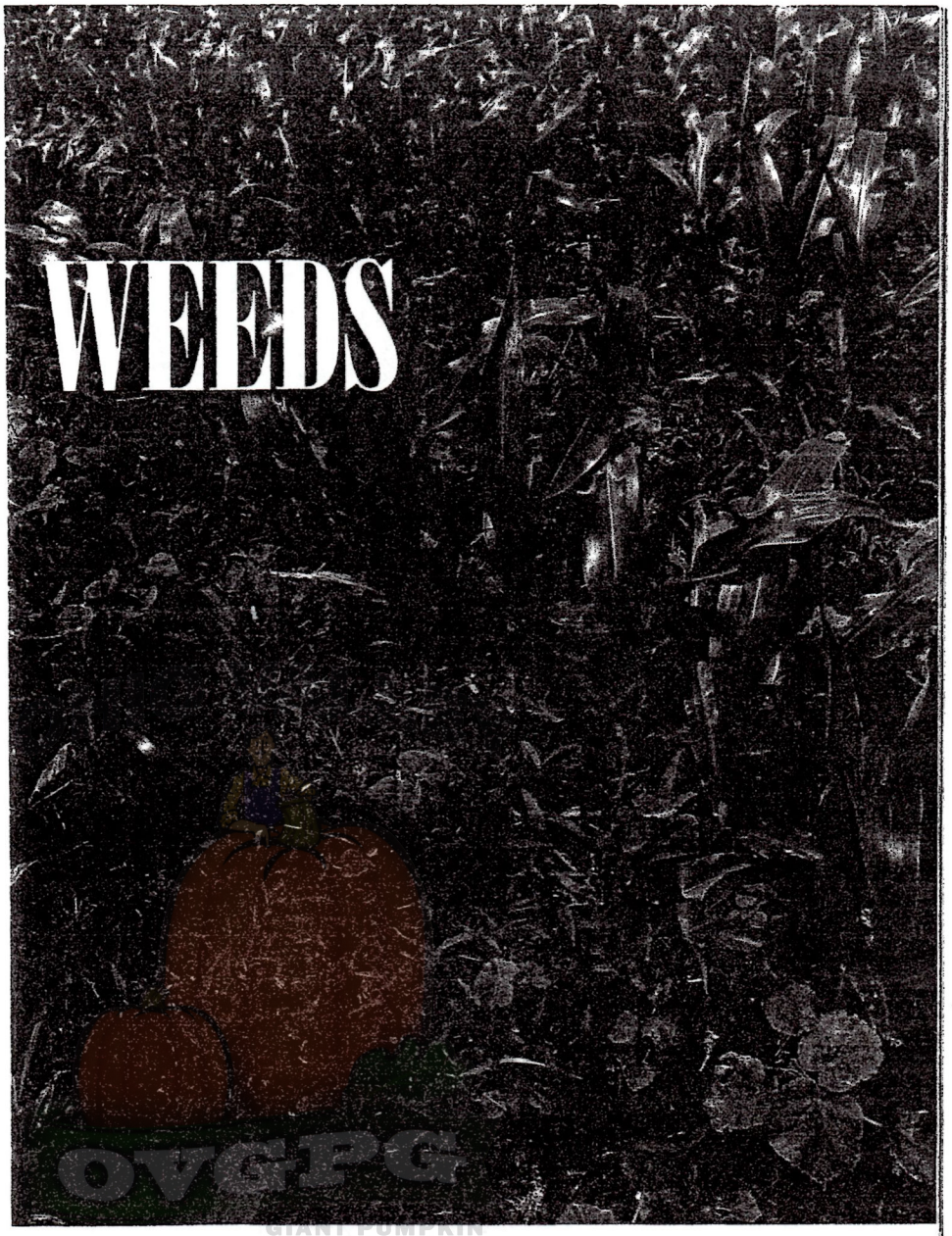
The squash was harvested Friday night, October 23rd in the pouting rain right at dusk. We immediately added water bags to the vines.

When the squash finally got to the scales the next day, the scales settled on 1236 lbs, narrowly breaking the World Record, by 2 lbs. Sometimes all the little things, literally make a world of difference.

By Larry Reichenberger

HUNGRY WEEDS

Small weeds use surprising amounts of crop nutrients and soil moisture



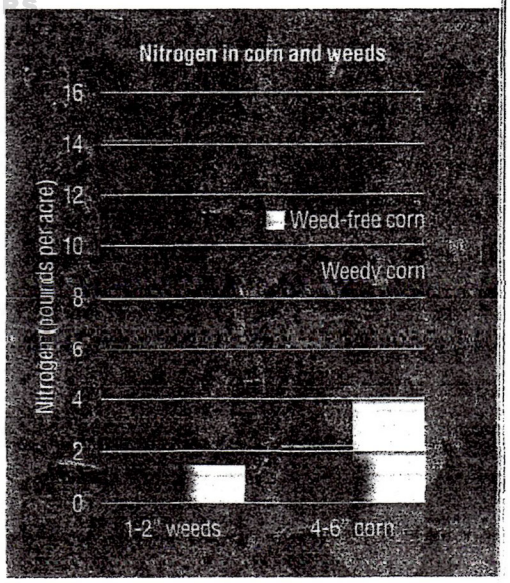
It's a caper on a grand scale, and it happens in plain sight in many corn and soybean fields every spring. Weeds and grass too small to draw farmers' ire are busy stealing expensive nutrients and precious soil moisture, and they do so at an alarming rate.

"Most farmers believe weeds cause no real damage until they're 4-5 inches tall, but research shows a significant impact occurs much earlier," says Bob Kacvinsky, technical support representative with Syngenta Crop Protection. "The popularity of crops with genetic resistance to non-selective herbicides has led many growers to rely totally on a postemerge weed control program. As a result, there's less early weed control and that's putting a stress on crops that can last all season. Using a preemerge herbicide can reduce this early weed pressure."

Nitrogen heist. Kacvinsky worked with researchers from the University of Nebraska to document nutrient and moisture use by weeds in various stages of growth. The chart shown here (below, right) displays data collected in corn this past spring.

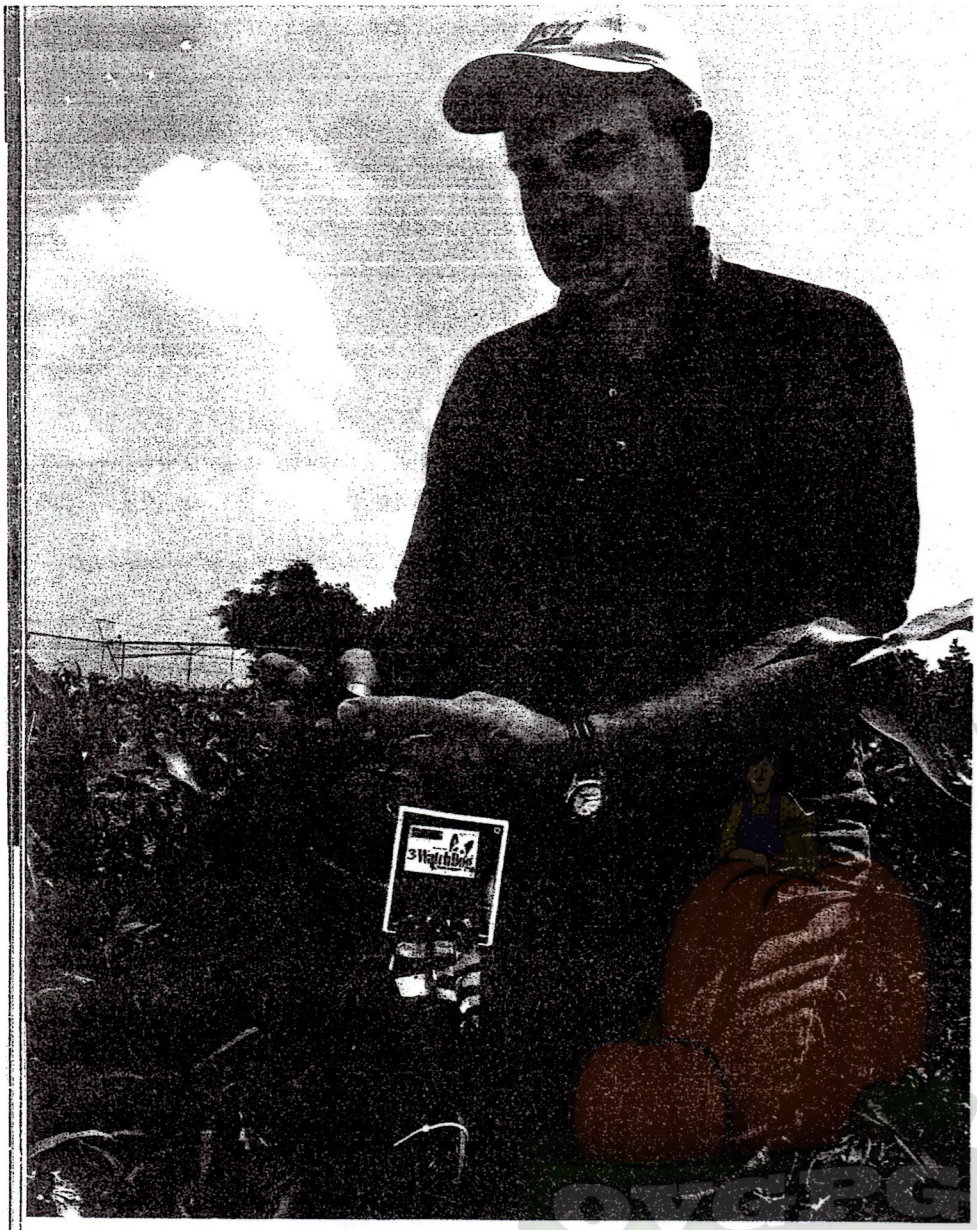
"We measured the amount of nitrogen in corn that was 4-6 inches tall growing with weeds that were only 1-2 inches. Where no preemerge herbicide was used there were weeds and grass typical of what you often see in farm fields. Those weeds contained 14 pounds per acre of nitrogen while the corn contained only 2 pounds per acre. When weeds were controlled with a preemerge herbicide, they contained less than 2 pounds of nitrogen per acre while the corn contained 4 pounds," Kacvinsky points out.

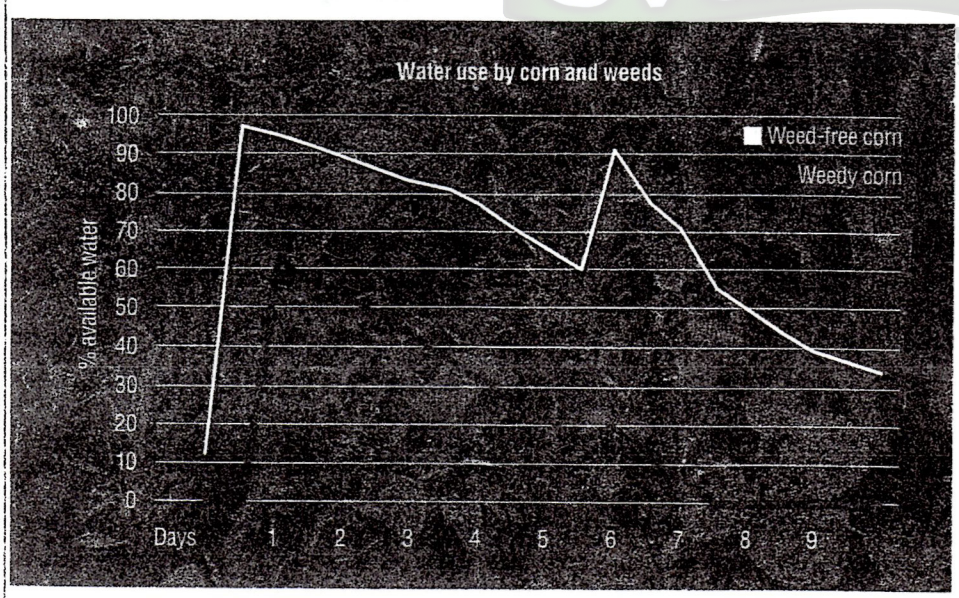
►**Above:** Research by Purdue University shows nearly half of farmers don't realize crop yields suffer from early-season weed competition. ►**Right:** Studies in Nebraska show that when early weeds are not controlled (red bars) they accumulate nitrogen much faster than corn.



The data is similar to results from a year earlier, when researchers found 1-2 inch weeds contained 9 pounds per acre of nitrogen while 4-6 inch corn contained less than 2 pounds. When weeds were 3-4 inches tall they contained 28 pounds of nitrogen while at the same time 8-10 inch corn contained only 7 pounds per acre.

Purdue University weed scientist Bill Johnson recently summarized





►**Left:** Soil moisture readings taken from buried sensors allow Bob Kacvinsky to document water use by various sizes of weeds and grass growing in corn. ►**Bottom left:** Use of a preemerge herbicide kept corn free of weeds and stretched the benefit of a 1.7-inch rainfall.

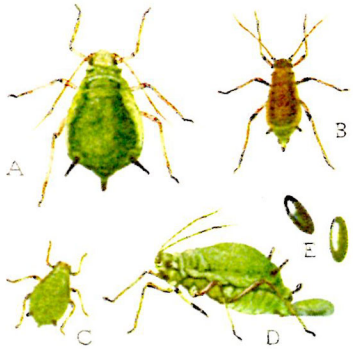
similar research. "We found when corn and grass emerged at the same time, the grass was a fierce competitor. At 3 inches in height, the grass contained about the same amount of nitrogen as the corn. However, by the time the grass reached the 12-inch height it contained three times as much nitrogen as the corn," he says.

Lasting impact. Not only does corn accumulate less nitrogen in the presence of weeds, it's also unable to catch up after weeds are removed. "The nitrogen deficit appears to last all season and that can impact crop health and grain yield. In fact, we suspect that increasing problems with stalk rot and lodging may be related to reduced nitrogen accumulation in plants caused by early season weed competition," says Kacvinsky.

Soil moisture is another target of competing weeds. University of Nebraska agronomist Bob Klein says corn uses roughly 42 gallons of water to produce one pound of dry matter. In contrast, lamb's-quarter use 73 gallons and mustards use 288 gallons of water to produce each pound of dry matter.

In his research, Kacvinsky buried moisture sensors to study water use by weeds. "We wanted to confirm the 3-3-1 rule of thumb—3-inch-tall grass growing for 3 days uses 1 inch of water. Three years of research has shown that old adage to be accurate," he says.

The chart at left shows the fate of a 1.7-inch rainfall in Kacvinsky's study. "Our moisture sensor was installed at a 6-inch depth. In weedy corn, 40% of the rainfall didn't even reach the sensor. A 1/2-inch irrigation five days later had little impact on water availability in that weedy plot and seven days after it fell, the rainfall was gone. Meanwhile 50% of the water was still available in corn where weeds were controlled by a preemerge herbicide." ■



- A, adult sexual female
- B, adult male
- C, young female
- D, female laying an egg
- E, eggs turn from green to black after they are laid

Aphids by Jack LaRue

Aphids are small soft-bodied insects, which thrive on just about any plant. Aphids may be the number one pest in numbers, frequency and number of plants they will colonize. There are hundreds of species of aphids. Aphids over winter as eggs. Spring brings on the hatch. Winged females immediately search out a food supply, lay eggs and move on to another fold source. It takes a week for the eggs to hatch. Once this first generation of aphids has started to feed, they start to produce live young. Each adult can produce up to 80 live young within a week. A few adults will produce a colony numbering in the hundreds of thousands in just one month if control measures are not implemented The young are wingless until the colony out-grows its' food source. When the colony gets too large winged live ones will appear. Their role is to leave the colony to seek new food sources and start new colonies.

APHID DAMAGE
Aphids deplete the life blood of plants
Aphids will cause leaves to curl up and die
Damaged leaves will not function properly
Aphid excrement is called Honeydew. Honeydew attracts many insects, is corrosive and fosters fungus. Aphids transfer diseases from one plant to another from field to field.

APHID LIKES
All plants (except possibly garlic); Warm, dry conditions; high nitrogen levels

APHID DISLIKES
Cool, wet conditions. Irrigation will wash aphids from plants. Once on the ground most often they will not return to the plant. Aluminum foil mulches can repel invading aphids

The good news is aphids are easy to kill. The bad news is the sheer numbers of aphids and their ability to reproduce means that they just keep coming back. Early detection and action are the keys to controlling populations. Controls range from natural to insecticidal sprays.

GARLIC EXTRACTS (repel aphids)
Garlic Gard & Garlic Barrier

NATURAL CONTROLS
Hand removal of the first colonies; Ladybugs can be purchased; Green Lacewings; Aphid Midge; Parasitic Wasps

CHEMICAL CONTROLS (LEAST TOXIC PESTICIDES)
Insecticidal soap; M-Pede: Safer Insecticidal Soap; Horticultural Oils; Ultra Fine Sun Spray Oil; Azatin IM; Neemazad IM; Neemix IM

HOT PEPPER WAX
Contains Capsaicin, paraffin and mineral oil.

NEEM OIL; Multi-purpose organic insecticide/fungicide/miticide; kills eggs, larval and adult stages of insects.
Trilogy 90 EC; Triact 90 EC

CHEMICAL CONTROLS
There are many chemical solutions to aphids. One trip to the local garden center should take care of your aphid problems. Just make sure the product you choose is labeled for the crop you are growing.