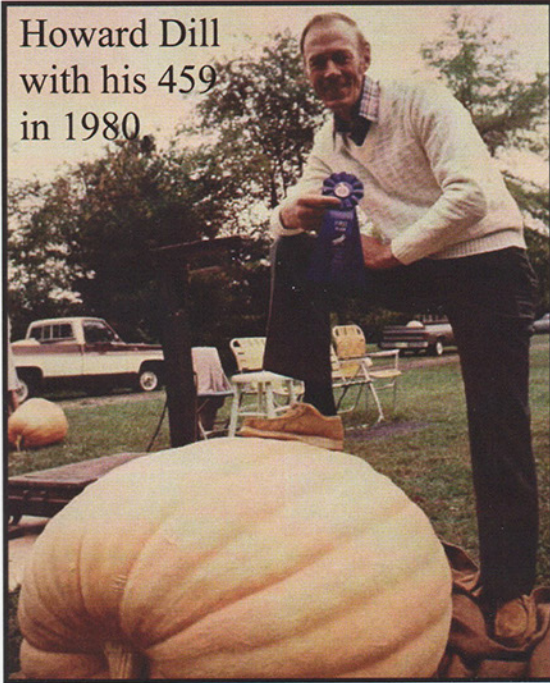


What were you doing in the 1980's. What was hot and what was not. Well here are a few reminders... Mike Tyson won the World Heavyweight Boxing Title in 1985. Wayne Gretsky "The Great One" scored 92 goals for Edmonton. Joe Montana won 3 Superbowls for San Francisco, Mary Lou Retton won Gold for Gymnastics at the Olympics, Michael Jackson won 8 Grammys in 1986. Ronald Reagan was President for most of the 1980's. The US Men's Hockey Team beat Russia at the Olympics and won Gold in 1980. Dick Wallace entered his first weigh-off with a 125 lb entry in Collins, New York in 1989.

Howard Dill
with his 459
in 1980



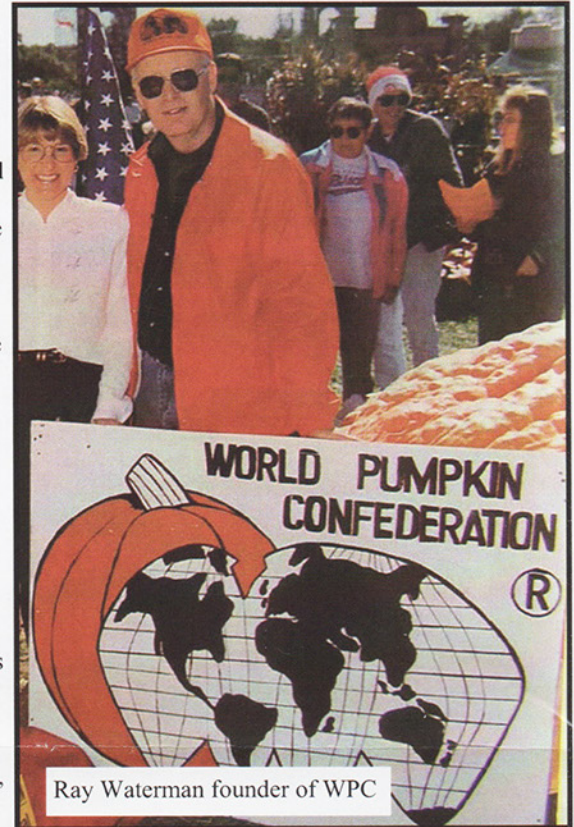
I remember the 1980's as a great era for pumpkin growers. It started out in a fine fashion and ended with a blast. Five World Records for large pumpkins were set in this decade. The 1980's began with **Howard Dill** taking top honors by growing a 459 pound Atlantic Giant. Previously he had won his first world championship in 1979 with a 438 pound pumpkin. Mr. Dill was just getting warmed up with his two consecutive wins. In 1981 he set another world record of 493.5 pounds. Howard won again in 1982, taking the bow for four World Championships in a row. The quarter ton mark was on everybody's mind for the next year. Who would grow the first 500 pounder?

You must remember when reading about these past accomplishments how incredible they are. The records of the past are early stepping stones

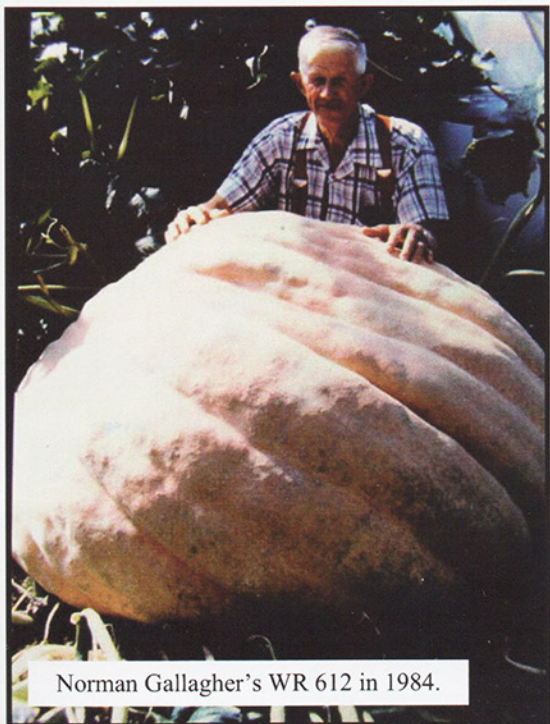
towards today's Title Holders. And if fruit weights keep going up, a 2000 pound effort, although Herculean, would not be competitive. Keep in mind that the records of the past may not be as impressive as those of today, yet they were just as phenomenal, in their time, as every ounce of genetic capability was squeezed out of those seeds. Of the 1980's.

In 1983 the World Pumpkin Confederation was formed by **Ray Waterman** and his family. A contest was organized to locate the largest Pumpkins and Squash in the world. The first year was a success for the WPC, with **Owen Woodman** of Nova Scotia, Canada winning with his 486 pound Pumpkin. In 1984 a \$10,000 check was offered to the first person to grow a 500 pound pumpkin. You are not a pumpkin grower if you don't know what happened that year. Four growers were able to top 500 pounds and one made it over the 600 pound mark. Six hundred pounds? No way! Could it be true? At 118.5 pounds above the previous record, **Norman Gallagher** turned into the Superman of pumpkin growing. His 612 pound Giant Pumpkin was grown in Washington State, and became

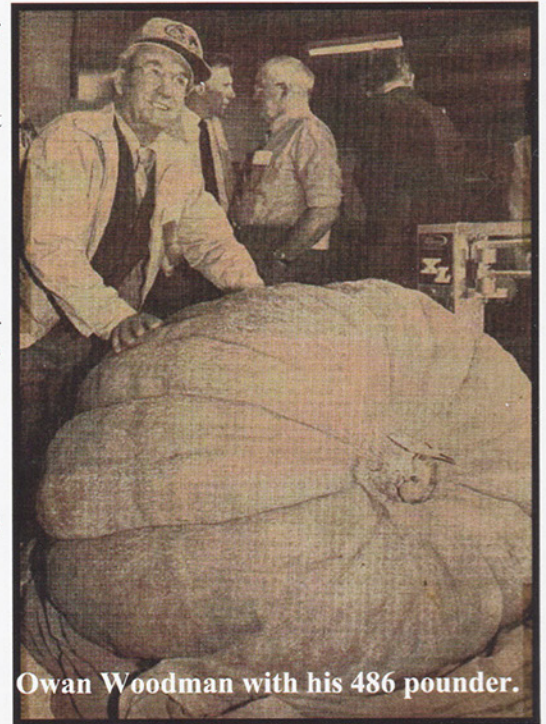
one of the great milestones of the decade. It was quite a site at the Half Moon Bay weigh-off, that year. At the time he was like the great Vassily Alexiev from Russia; the first weightlifter to clean and jerk 500 pounds? Soon after that many other Olympic class athletes were able to surmount that barrier, and the record quickly jumped to almost 600 pounds. Man has not grown much stronger, just smarter and more confident due to the achievements of those who pioneered the trail. By 1989, a mere 5 years later the sport was skyrocketing and many, many more pumpkin growers started growing, and believed they too could achieve 600 pounds. Since Norman shook the horticultural world with his impressive accomplishment. Thirteen pumpkins, in the following five years, entered the 600 pound realm. Norman Gallagher had set in motion the 700 pound goal.



Ray Waterman founder of WPC

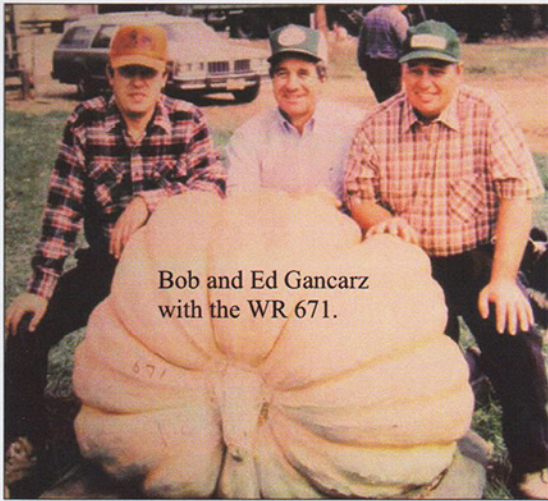


Norman Gallagher's WR 612 in 1984.



Owen Woodman with his 486 pounder.

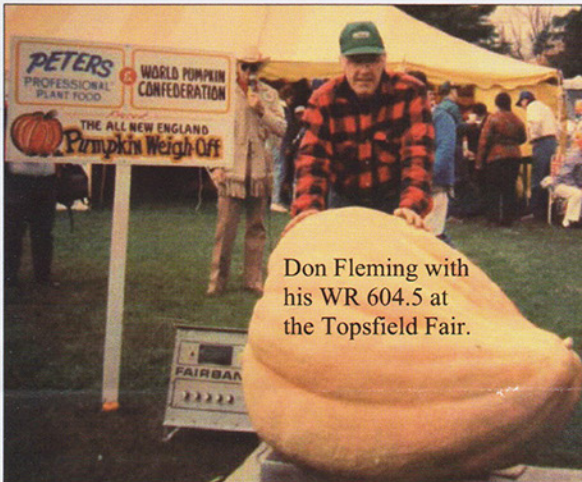
In 1985, Scott Cully took first place at the Topsfield, Massachusetts Weigh-off with his 515.5 pound pumpkin. Then; invited to be a guest on the “Tonight Show”, he brought much need national publicity to the WPC.



Bob and Ed Gancarz with the WR 671.

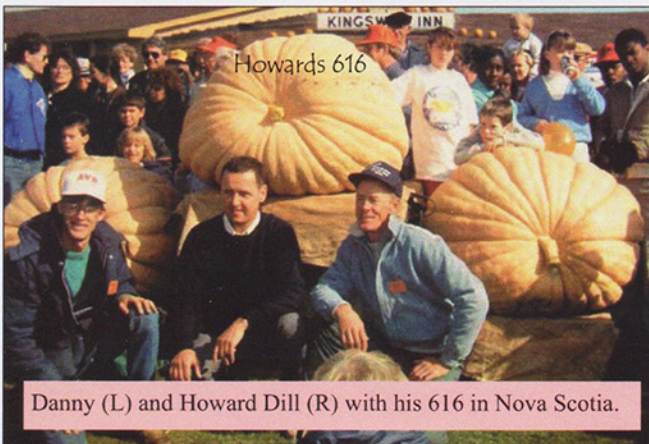
Interviewed by Television celebrity **Johnny Carson**, Scott’s subtle humor and dignified manner was a credit to us all. Scott Cully’s heroic success became my inspiration. I wrote to him and he quickly responded with three seeds from his champion. Thanks to Scott, one of those seeds produced my 579.5 **Alan Nesbitt** pumpkin in 1986.

Bob and Ed Gancarz became the champion growers in 1986. Of the four specimens they brought to the WPC weigh-off in Collins New York that year, all broke the previous records for their class. Their biggest pumpkin weighed 671 pounds and their largest Squash weighed 595.5 pounds. That same season they picked a total of eleven pumpkins and squash with each one weighing in excess of 500 pounds. The Gancarz brothers consistently displayed pumpkins and squash over 500 pounds for the last 5 years of the decade. In world wide competitions for Squash and Pumpkins, Bob and Ed placed in the top three position eight times from 1986-1990.



Don Fleming with his WR 604.5 at the Topsfield Fair.

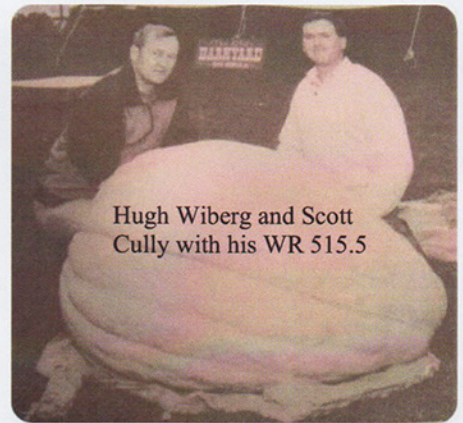
The competitive years of 1987 to 1988 showed promise for the first 700 pound pumpkin.



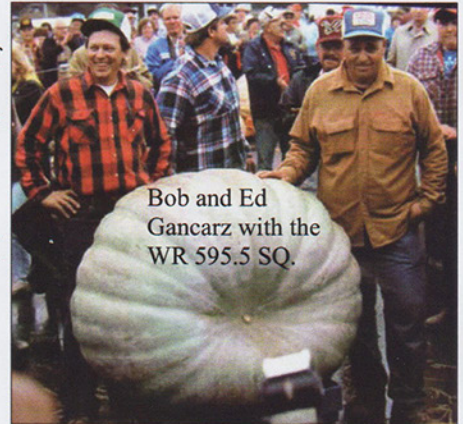
Howards 616

Danny (L) and Howard Dill (R) with his 616 in Nova Scotia.

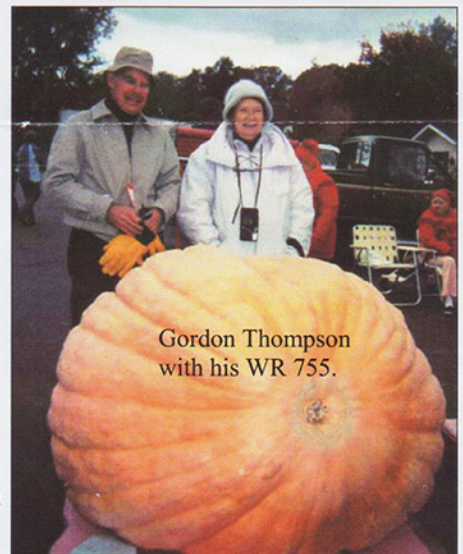
Growers like **Don Fleming** winning Topsfield in 1987 with a 604.5 pounder, , **Larry Harbord** (627 in NJ in 1988), and **Howard Dill** with 616 pounder in 1988 in the pumpkin classification, and **Leonard Stellflug** with 653 pounds in the Squash classification began knocking on the 700 pound door. All succeeded in going over 600 pounds. 1989 heralded three specimens over 700. **Gordon Thompson**, (755 lb pumpkin) **Leonard Stellflug** WR 743 lb



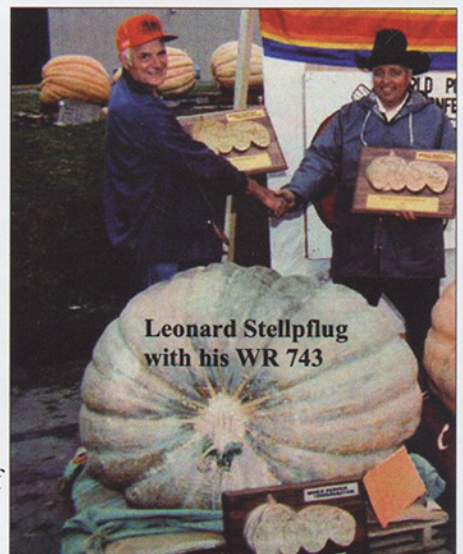
Hugh Wiberg and Scott Cully with his WR 515.5



Bob and Ed Gancarz with the WR 595.5 SQ.



Gordon Thompson with his WR 755.



Leonard Stellflug with his WR 743

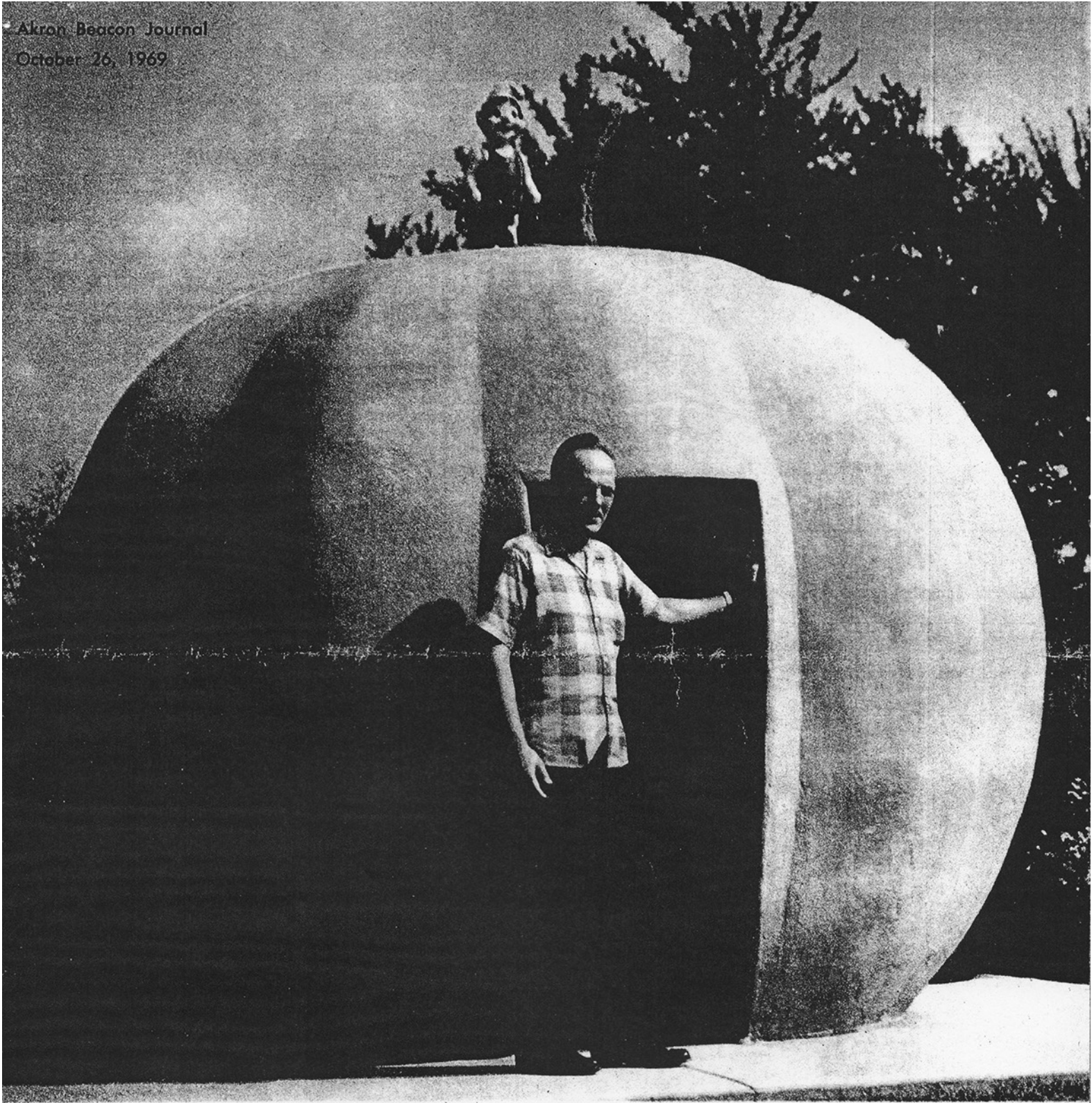
Squash, and **Bernard Lavery’s** 710 lb pumpkin from the United Kingdom, shared a piece of history, in the record books.

We must applaud these growers who made the dream of growing a 700 pound giant a reality.

Amazingly the growth ratio per decade keeps increasing. See chart. If we were near to max-

ing out the growth rate per decade should be getting smaller. So we must be on the cusp of some unbelievable weight gains. Watch out 2500 pounds here we come! ** 603 lb increase for this decade if we include the 2328, grown by Beni Meier.*

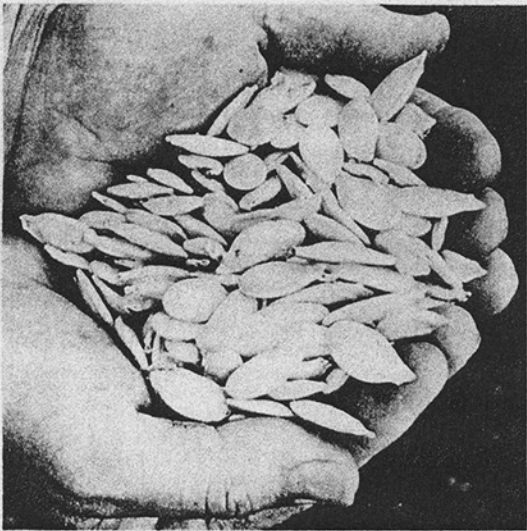
Decade	Record at beginning and end of decade	Weight Gain per decade (lbs)
1980-1989	459 Dill - 759 Thompson	296
1990-1999	759 -1131 Checkon	376
2000-2009	1131-1725 Harp	594
2010-2013	1725 - 2032 Mathison <i>*1725 - 2328 Meier UOW</i>	307 in 3 years <i>*603 in 3 years</i>



BEACON

Ravenna's Bob Fox grows them big . . . but not as big as his pumpkin house.

Story inside.



IT ALL STARTS HERE

...FROM A HANDFUL

By TOM SUCHAN

When you're Number 1, there's simply no rest.

Just ask Bob Fox of Ravenna.

Fox, who grows pumpkins and squashes in unheard of sizes, is finding

the attention paid to his exploits a little overwhelming.

Like the more than 1,000 letters he has received from all over the country. Most of them are from folks who want tips on growing and the like.

He has answered every one of them.

THEN THERE ARE requests to write books about his growing secrets.

Fox hopes to do this some day.

He has already written a brochure highlighting some of the tips.

And the visitors . . .

"We get people up here all the time who want to see the garden and take pictures."

Fox is finding rest a very limited thing.

BUT THIS BURST of popularity and this lack of rest is all his own doing.

It was Fox who, six years ago, started experimenting with giant squashes and pumpkins.

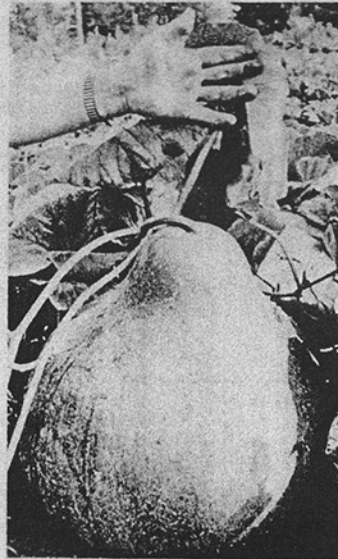
By 1965, he had grown a 221-pound squash.

The following year, he had a 250-

Photos by
Ted Walls



Bob Fox displays a 125-pound banana squash he raised. The name comes from its shape.



It's a gourd and a prize-winner at that. It weighed 81 pounds and was rated the heaviest gourd in Ohio in 1968.

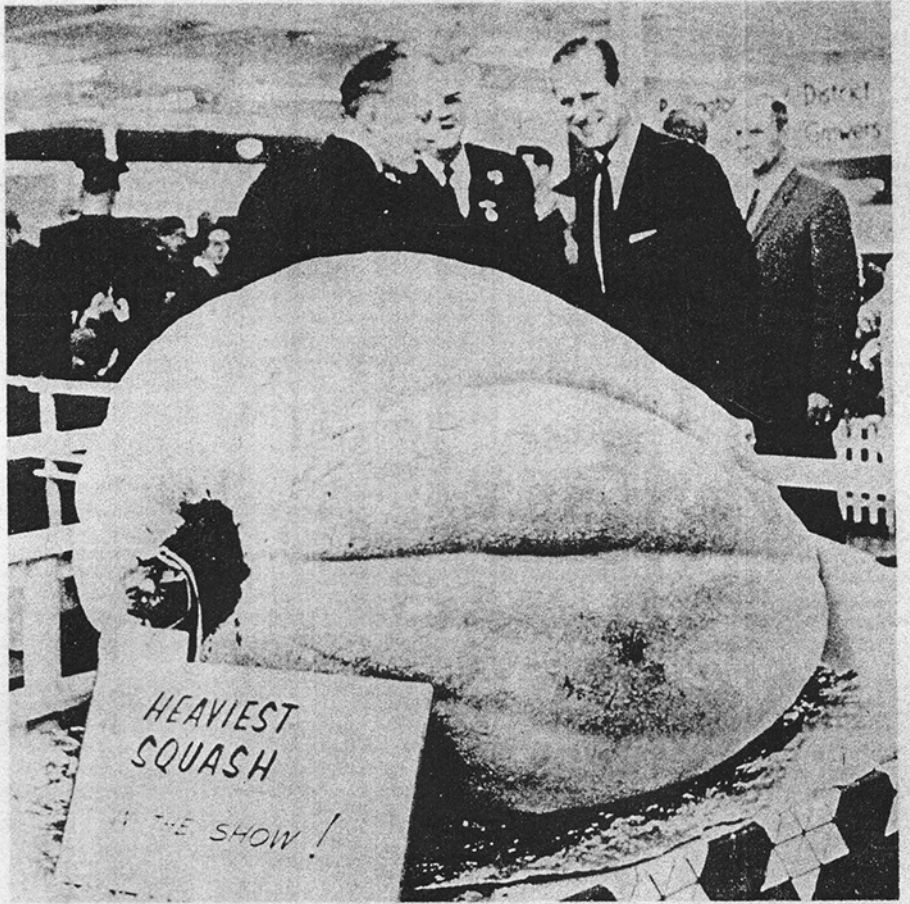
Pumpkins come in all varieties. Fox shows off a cheese pumpkin. He has grown one that weighed 110 pounds.



OF SEEDS...



Fox grows all kinds of pumpkins. This is a running green, a French variety.



Fox (left) wins the congratulations of Britain's Prince Phillip at the Royal Agricultural Winter Fair in Toronto in 1967. Fox' Hungarian squash weighed 301 pounds and was rated heaviest in the show.



**Our
Cover
Story**

pound squash and a 207-pound pumpkin. He won first places at Columbiana and Canfield fairs and was invited to display his squashes as a special guest at the Circleville Pumpkin Show.

FOX WON THE WORLD crown with a 301-pound monster squash at the 39th Royal Agricultural Winter Fair in Toronto, Canada, in 1967.

That accomplishment brought congratulations from President Johnson and a handshake from Britain's Prince Phillip.

Since then things in the field of competition have slowed a bit.

"After you win all the titles, then what?" Fox asked himself.

SO HE STARTED really studying his

field and then went into judging squash and pumpkin displays at various shows.

He has kept his garden going, however. This year he experimented with giant tomatoes and purple potatoes along with the "usual" giant fare.

Then came the high point.

Fox' home at 6543 Ohio 14 has been kind of home for giant pumpkins. And he wanted to identify it as such.

So he built a pumpkin house.

THE 8-FOOT HIGH building sits in his backyard near the garden.

It was designed by his step-father, Richard Eby of 977 Ashmun dr., Tallmadge.

Plastering was done by George Vair of 3301 Herif rd., Ravenna.

The pumpkin house would be a fine topping for his career.

But Fox has other ideas.

"I'd like to start a cucurbit (a plant of the gourd family like squashes and pumpkins) museum." (End)



Changing pH in SOIL



There has much debate amongst Giant Pumpkin Growers on this subject over the years. But the general consensus is that the optimum number is 6.8 for our Cucurbita Maxima fruits. pH is a term, or more correctly a standard scale, by which we refer to the balance of acidity and alkalinity in a given material. For our purposes the “material” is usually soil, and the effective pH range runs from 5.0 (strong acid) to about 7.6 (quite alkaline). That is, with 7.0 as absolute neutral, you’ll seldom find a soil sample that is more acid or alkaline than these figures. So as stated earlier our pumpkin plants grow best in pH of approximately 6.8 (slightly acid), generally speaking. But different plants do have differing pH requirements. See Chart at right.

Type	Best pH
Tomato’s	6.25
Pumpkins	6.8
Watermelon	6.8
Long Gourds	5.5
Sunflower	6.5
Squash	6.8
Giant Corn	6.5

You should be aware of the pH best suited for a given plant variety, because it will be in this range that the plants can best utilize nutrients in the soil. And yes, pH does have a direct bearing on fertilization. Or pollination, so we’ve just given you two reasons to optimize your pH. pH can be adjusted by the addition of lime or sulfur to the soil, and a pH test (done by most Soil Labs, like UMASS Soil Tests), is recommended. Or you can purchase a test kit. Results from either of these test methods will tell you if soil adjustments are needed.

Sulfur+Sulfates lowers pH

Its important that you apply either of this medium. before the plant is in the ground or before the plants roots start looking for it. It is not plant available until it is oxidized. This takes time - usually a month. An early Spring application could help, but generally growers also prefer to spread and till it in, in the Fall, after getting their soil



test results. That way you have the Fall and Spring for it to break down. For it to work best the soil needs to be moist, warm and aerated (tilled). With time, rainfall will leach the salts out of the rooting zone, so if you are a true Extreme Grower, and want to compete on higher level, you need to check it every year. For lowering pH, Aluminum Sulfate, Iron Sulfate and Sphagnum peat, may be better for us growers to use since you are less likely to

Pounds of Aluminum Sulfate or Iron Sulfate needed **to lower pH** of a loam soil to a depth of 6 inches

pH now	Desired soil pH				
	6.8	6.0	5.5	5.0	4.5
↓	Lbs Sulfur needed per 1000 sq ft.				
8.0	207	276	379	483	552
7.5	186	289	310	414	483
7.0	69	138	241	345	414
6.8	—	69	172	276	310
6.0	—	—	69	172	241

If Elemental Sulfur is used, divide by 6.9

over-apply the material. We do not encourage growers to use Elemental Sulfur (yellow powder), unless you really know what you are doing, since its 7 times more powerful and very easy to over apply. So Aluminum sulfate, Iron Sulfate should be mixed with the soil. The reaction is a chemical one with these mediums, rather than a biological reaction, as occurs with Elemental Sulfur.

Limestone raises pH

The ideal pH range for soil is from 6.2 - 6.8 because in this range most plant nutrients are in there most available state. If your soil test indicates a pH below 6.8, the usual recommendation is for the application of ground limestone. In addition to having the ability to rise pH, limestone contains Calcium. Some Growers prefer dolomitic limestone because it contains both Calcium and magnesium. The table below indicates the number of pounds per 1000 square feet of ground limestone required to raise the pH of a given soil, based on the original pH, desired pH, and soil type.



In order to select the correct application rate use a soil test to determine both the soil texture group and the current pH. As the % of clay in a soil increases, it requires proportionally more limestone to raise the pH. This means it is much harder to raise the pH of clay soil than sandy soil. Consider that limestone moves *very slowly*, taking years to move down a few inches in the soil. This is why it is so important to test soil early in the planning process. Limestone should be tilled into the soil root zone (top 7 inches).

Limestone Requirements (lbs/1000 sq ft)		
SOIL TEXTURE	From pH 4.5 to 5.5	From pH 5.5 to 6.8
Sand and loamy sand	23	28
Sandy loam	37	60
Loam	55	78
Silt loam	70	92
Clay loam	87	106

Common Liming Material		
NAME	Equivalent to LIMESTONE	SOURCE
Shell Meal	95	Natural Shell Deposits
Limestone	100	Pure form, finely ground
Hydrated lime	120-135	Steam burned
Burned lime	150-175	Kiln burned
Dolomite	110	Natural deposit
Calcium silicate	60-80	Slag

GOT PEAT!

by Steve Connolly

What's up with the sudden interest in soil conditioning with Peat Moss, Vermiculite and Perlite. Aren't these some of the most common ingredients around. OK so the largest 3 pumpkins in the world were grown in essentially a soil less medium of PEAT and perlite.

Does that mean we all have to do it, to stay competitive, and grow our first 2000 pounder. Well that depends on the goals you set for yourself. So lets size up our options, and first understand more about the Pros and Cons of this composted vegetation called Sphagnum Moss.

Where Peat Comes From Peat comes from Peat lands. A Peatland is an ecosystem that develops in a bog. A lake or a pond holds rain and ground water. Vegetation, largely sphagnum moss, grows, slowly filling the bog. As the sphagnum moss dies each year, After about 5000 years it partially decays in the bog, creating "peat moss". Peat Moss is heralded by many growers as a wonderful soil conditioner. It helps to loosen and enrich the soil. Peat holds moisture, and then releases it over time. It's loose nature leaves plenty of room for air, which is vital to healthy Pumpkin plant roots.

We use this mixture every Spring for Potting Soil, to give our chosen seeds the best possible start and root growth. Many Growers also use **Peat pots** which are naturally organic. Peat is compressed into round or square pots of varying sizes,



from 2 -1/2 inches to 5 inches in diameter. The pots are organic and porous, yet strong enough to hold seed starting soil and your favorite, young seedlings. At planting time, transplant the Pumpkin seedling in the pot right into the garden, minimizing broken roots and transplant shock.. Broken roots can stunt/delay plant growth and set you back 1-2 weeks. Undisturbed roots will easily grow through the pots. Just keep the Peat Pots damp, and then good and wet the day you transplant outdoors. If inclement weather is keeping you from transplanting, and the roots are showing outside of the pot, you can replot the seedling, pot and all, into a larger one.

How much peat to use:

For most potting applications, use one part peat to 2 parts regular garden soil. Now comes the critical part of this discussion. How much could you add to your whole patch to gain some of the following known benefits, all year long.

Benefits of Peat Moss:

- Adds structure to sandy soil
- Loosens and aerates heavy clay soil
- Stores fertilizer and nutrient, reducing leaching of nutrients from the soil
- Saves and holds water, but not too much in the soil
- Added to compost piles to speed up decomposition, and reduce odors.



It seems like there are an endless lists of benefits to Peat amendments. Here is another one. Peat moss prevents soil from hardening. The organic matter which composes peat moss improves soil composition...But there is dark side about this soil-less median for Pumpkin Growers to be aware of.

Peat by its self is not good. PEAT has been around a long time, and known by our ancestors as a great growing amendment, but there are some drawbacks....Below are some negative effects:



- Its PH is too low, for the Cucurbita Maxima species. Its very acidic without some adjustments. It normally has a pH in the 4.0 range. And our Pumpkins need a 6.5 pH. You as the grower can make adjustments with the addition of some lime stone.
- Too Much Water Absorption : Peat moss absorbs 20 times its weight in water and slowly releases it.. Its full of a lot of organic matter. Yes this means that the plants have a steady supply of water over a long period of time, but it also leads to rotting vines or roots (from a heavy rain storm) if they are left too wet for too long. As the grower you can make adjustments like adding perlite or Vermiculite to help aerate the Peat before mulching it in. to your garden soil.
- If Peat is only spread on the surface as a top layer mulch to suppress weeds, and left too dry, it can cake up and harden creating a surface layer that prevents rain water (a minimal rain storm) from getting down deep to the roots, before it evaporates away. This can be prevented with a good till to evenly mix the Peat into the soil in the beginning of the season.

If you are thinking about adding a LOT of PEAT, next year, better think about covering your patch or building a green house, over it for protection from a midseason deluge. Lots of organic matter equals lots of water absorption. It's a catch 22. But if you are like 98% of the growers and grow your pumpkins outdoors, there is really nothing wrong with using this soil-less medium in moderation, especially tilled in around the planting hole with the regular soil. And now growers have the option of buying it at a cost of about \$30 per 3.8 cu ft. , premixed with some great additions. Like mycorrhizae. Seems like the word is out, to the general population, about the beneficial roots enhancements from this fungi host plant. The viable spore counts probably don't match that of our pure mycorrhizae suppliers, but PRO MIX is making a run at the gardening business. And they are even incorporating the following into the bags of PEAT.



- Biofungicides (Bacillus Subtilis for root protection)
- pH adjusters like Limestone, to lower acidity levels, making it compatible with cucurbits.
- Perlite for soil aeration.

The choice is your's. We just want you to be aware of your options.

How I Grew the World Record 1578 Holub Green Squash by Scott Holub

My basic pumpkin growing principles are to grow the best genetics and provide optimal nutrients, optimal water, and optimal temperatures without costing me too much money. Nothing too exciting in the growing methods, really. I just use standard agricultural principles and copy more experienced growers, but I will cover that later on in the article. I think the more interesting part of getting to 1578 green pounds was the genetics and seed selection. Before we go too much further, it would be helpful if you Google "Mendelian inheritance". Through some crosses observation, and testing, mostly by people other than me (Pitura, Shyman-ski, Cantrell, Haist, and others), we have determined that green fruit in *Cucurbita maxima* is a recessive Mendelian trait. Recessive traits are those that can "skip a generation" and that is clearly what green-fruitedness does when crossed with non-green-fruited plants. A cross between a modern orange-fruited "pumpkin" and a green-fruited "squash" will almost always yield seeds that will all grow into what look like pumpkins, no greensies, but those "F1 hybrid" pumpkins will have a hidden green gene in their seeds. (See the diagram.)

Look at competition weights and you see that pumpkins have the obvious genetic advantage over squash. This is due to the more intense and rigorous selection that pumpkins have had from being much more frequently grown. This year, and in previous years, there were about 1/10th as many squash grown as pumpkins and that makes a huge difference in the ability to select for weight in squash; outlier weights are a lower probability occurrence, so selecting for them is difficult. Weight-wise the pumpkin x squash (or squash x pumpkin) F1 hybrids would be expected to be intermediate between squash and pumpkins, since weight acts more as a quantitative trait than the on/off Mendelian green/not-green fruit color. So offspring from the F1 will just look like slightly smaller pumpkins. However, when these F1 hybrids with the hidden green gene and intermediate weights are selfed or crossed with each other in a second generation this gives the green-fruitedness an opportunity to appear again in that "F2" generation (at a rate of 1 out of 4 offspring, on average). At this stage we'd predict that some of these F2 offspring with intermediate genetic weight potential will be GREEN! (See the diagram.) This gives these fruit a substantial competitive advantage for weight in the green squash class. This phenomenon is what I gambled on in the selection of the seed that ultimately produced the new world record green squash: The 913* Boyce seeds and the 1221.5* Robinson seeds are F1 AG x Squash hybrids and the 615 Cantrell seeds are the F2 hybrids from the above discussion and diagram.

Some notable pumpkin heritage in the 615 Cantrell (and thus the 1578* Holub) includes 1634/1461 Werner, 1236/1725 Harp, 1421.5/1662.5 Stelts, and 1385/1689 Juras on the Boyce side, and 1807/1351 Stelts, 1495 Stelts, 1161/1566 Rodonis, and others on the Robinson side. 996* Haist, 800* Neily, 895.5* Hester and 990* Hebb make up most of the squash genetics. The maternal line was squash: 895.5* Hester. I planted out 8 plants from 615 Cantrell seeds in one patch and grew them all, in full competition mode, to the first female stage in mid June. I pulled plants that showed yellow or striped-yellow small females as they appeared. There were 3 green-fruited plants and 5 yellow-fruited, consistent with the 1/4 green estimate based on the single gene Mendelian recessive assumption. It's worth pointing out that each single plant is either entirely green-fruited or entirely yellow-fruited. You won't normally find an individual plant that has both green and yellow baby females unless something weird is going on. I selected what I thought was the best colored, best positioned, and best growing plant of the 3 green-fruited ones and pulled the other two leaving just one plant to occupy that patch and grow out to harvest. Since the 1578* Holub (615 Cantrell x self) was green, and it was selfed, the seeds should all produce green squash with the potential to reach high weights. Even greater squash weight gains are probably attainable as future generations of hybrids are developed that incorporate even more advanced pumpkin genes. Meeting the color rules for squash is always tricky business even in "purebred" squash lines where we sometimes see non-squash colors showing up in patches or spots on the fruit that will disqualify it from entry in the squash category. These disqualifying color traits are likely not related to the green-fruitedness gene directly, but are probably influenced by other genes, gene interactions, and environmental effects not fully understood. Just a word of warning that perhaps not all green-female squash x pumpkin F2 crosses will successfully meet the color guidelines. It also helps to get lucky.

Here's a brief summary of my growing methods, just what I did, not a recommendation:

Nutrients: I grow on nice river terrace sandy loam, which is a great place to start. I finally broke down and got my first soil test this year and also did an early- and mid- season foliage test. (I'm such a cheapskate, so it was hard to write those checks, but worth it, I think.) Deficiencies were addressed, but probably not always adequately corrected as some persisted despite treatment. Pre-planting this consisted mainly of leaves collected from my neighborhood, dolomite lime, 16-16-16, urea (46-0-0), and

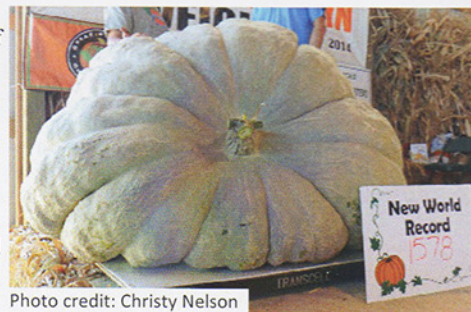


Photo credit: Christy Nelson

K-Mag (0-0-22); all from the farmers' co-op. Micro nutrients were purchased locally or online and applied pre-plant to the soil and foliarly through the season per test findings. Low rates of prilled/pelletized fertilizers were also applied by hand under the leaves on a few occasions during the season. No fertilizer in the irrigation water, no kelp, no mycorrhizae or biologicals at all this year, and nothing but patch soil to bury vines. I don't completely discount that stuff, but first things first (i.e. N-P-K-S-Ca-Mg from ag strength fertilizer), since I try to keep costs down. I did foliarly apply some monopotassium phosphate once it went on sale later in the season, but I think that did more to burn the leaves than help growth, hard to say. Cheaping out on a later foliar test was probably a mistake; I think there were signs of potassium deficiency I didn't catch early enough and some leaf bloating indicated that I ended the season way too high in nitrogen.

Temperature management: I germinated the seeds indoors in late April using the ziplock and moist paper towel method on a heating pad, but I overheated my first batch when

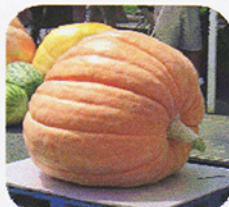
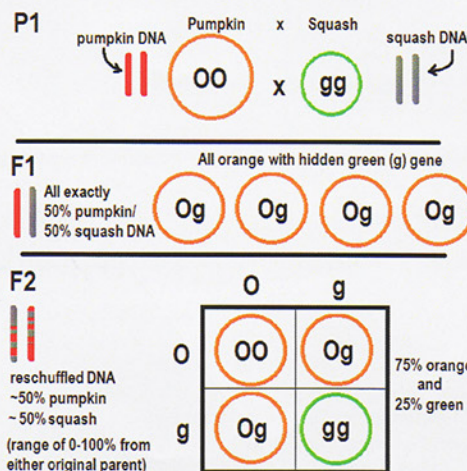
the thermostat slipped out from the heated area. A few survived, and more replacement seeds (Thanks, Dave!) were started a few days later. The world record plant was one of the replacement seeds. Seeds were grown inside the house until the first true leaf was well formed and were then placed out in mini green houses (two plants per hut) in early May after hardening off. Green houses were opened and closed daily and nightly per the weather conditions. Later during pollination female flowers and developing fruit were shaded with plastic chairs and old sheets until they reached a size where just sheets would work. When possible and when temperature forecasts indicated, blankets were added over the fruit to keep it warm at night or cool on hot days.

Water: More by evolution than by design, I use standard 50 ft garden soaker hoses on a 3-station automatic timer for most of the daily (or 2 or 3x daily) watering needs. (I bought soaker hoses my first year out so I just keep using them and buying more. There are probably better and cheaper ways to get water out to the plants.) I added approximately 50 to 150+ gallons per plant per day depending on the weather. I hand watered after fertilization to wash material in and I hit dry spots by hand occasionally. I like to keep fruit and leaves dry when possible.

Diseases and insects: Slugs, cucumber beetles, powdery mildew, and aphids were my main problems. I used traditional slug bait with Metaldehyde. I used DeBacco's diluted milk method early in the season for powdery mildew prevention. Later in the season I added in chlorothalonil when I saw PM showing up. I also did a couple doses of myclobutanil during some high humidity, high disease pressure periods. For insect control my first line of defense was planting fennel in a couple spots in the patch even before I put the pumpkin/squash plants out. Fennel attracts a wide variety of beneficial insects to the patch: lady bugs, wasps, etc. I also had mixed flocks of birds visiting and foraging for insects almost every morning. I did spray bifenthrin if the beetles or aphids got too vigorous for my liking. Weeds were sprayed with glyphosate both ahead of the vines and carefully under the leaves, where feasible, with some hand pulling as needed. Again this is just what I did, not in any way a recommendation.

Check out my diary on bigpumpkins.com - my handle is bathabitat. At some point I hope to add some patch pictures, vine training diagrams, etc. Feel free to post other questions to the squash message board on bigpumpkins.com.

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615 Cantrell 2013 fruit - a seed from this fruit grew the 1578 lb WR squash.

Photo credit: Dave Cantrell

A Q&A with Pete and Cindi Glasier. How they grew a 2036 pound Giant Pumpkin!

Q- Hi Cyndi and Pete. Congrats for growing the 2036! And Thank you for doing this recap of your growing season in Napa, California. We and growers throughout the country really appreciate an interview like this. You are definitely well known around these parts. Could you tell us a little more about you and family, and how long you have been growing Atlantic Giants. Pete was born and raised in Denver, Colorado. He was a farmer all his life. He grew sweet corn, Indian corn, Halloween pumpkins, decorative gourds, etc. which we sold at a roadside stand. He started growing Atlantic giants about 35 years ago. Cyndi was an Air Force brat born in Bermuda where her father was stationed. Before transferring to Denver in 1960. Cyndi came to work for Pete in 1977. At that point she was a Poly Sci/ French major in college and did not know the difference between a petunia and a pumpkin plant! But she did know how to spot a good man! Cindi knows a lot about Pumpkins&Sports (especially the NBA).

Q- Do you have any mentors. Our number one mentor was Howard Dill. There was no internet and not many growers in the 80's. Pete used to call Howard with many questions and he always gave him great advice. When we lived in Washington and Oregon our mentors were Joel Holland and Kirk Mombert. Then there are the Napa Growers like Tim Mathison, Leonardo Urena, Jose Ceja, Gary Miller and John Hawkley. We also have other growers in Napa that have the potential to grow a big pumpkin in the future.

Q- So 2036 lbs. at Uesugi Farms. Were you surprised by the weight. We were hoping the 2036 would go a little heavy, which it did. We think the huge weight is due to the genetic make up and growing techniques. As Pap says, "the harder you work the luckier you get!". We do put a lot of work into our patch.

Q- Can you tell us a little about your Fall Prep back in 2013. Our patch is 3200 sq ft. We added 150 lbs. of oyster shell lime, 25 lbs. of myco, 5 lbs of root shield. The patch was ripped about 18 inches deep. After that we planted annual rye grass in early November.

Q- Do you grow in the same patch every year We grow in our backyard and have grown in the same area for 10 years. We grew 4 plants in 2014.

Q- In the Spring did you add any more amendments to your soil, and do you use any manure fertilizers. Do you get soil or tissue tests. No manure is added. In the Spring we applied 110 lbs of humic acid, 150 lbs of oyster shell lime, 75 lbs of feather-meal, and 14 lbs of mycorrhizae. We got 8 yards of compost (1/3 grape compost, 2/3 yard waste compost). which we spread throughout the growing season to help keep the soil a constant temperature and to conserve water. We get soil tests from A and L Labs in the Spring and the Fall.

Q- When do you plant, and how do you warm up the soil early enough in the Spring in NAPA Valley, CA We started our seeds April 19th indoors and transplanted them in the patch on April 26th. We use 7 ft x 10 ft greenhouses to warm up the soil before transplanting. We put the greenhouses up a week to ten days before transplanting.

Q- Are you using any mycorrhiza. Yes, we use a lot of mycorrhiza. We use about 60 lbs for our 4 plants.

Q- What are the worst pests on the West Coast. Any Squash Vine Borers. The worst pests here in Napa in 2014 were cucumber beetles. A new batch would appear about every two weeks. We had a few squash bugs which we hand picked. We do not have any squash vine borers on this side of the Rockies..

Q- How about insecticides, and biological products you are using. For insecticides we use Bayer 3 in 1. We also used some Tarantula as a biological product. We used Root Shield and Myco in the planting hole and when we bury vines. We use a lot of Companion (1 1/2 Gal.) when we bury vines, and as a drench

throughout the season. This past season we sprayed more often. We sprayed seventeen times during the season.

Q- What type of irrigation are you using for watering. Are you foliar spraying any compost tea's. How much water do you apply daily. We use overhead mini sprinklers for watering. We run them all for four hours, twice a week depending on the weather in order to water the patch. This system is also used for misting almost everyday which also gives the plants some water. We also hand water places the misting system doesn't get.

Q- What sort of vine pattern do you prefer to use. We use a spider type vine pattern. We do turn the vine 90 degrees at the pumpkin. We cover the vines about every two or three days.

Q- How do you beat the incredible Heat in NAPA Valley.. Surprisingly we did not have any 100 degree days in 2014, but quite a few 90 degree days. We use our mini sprinklers for cooling. We have a looping timer which gives unlimited on and offs during the day. In hot weather it runs about 10 seconds on and 2 minutes off the prevent leaf burn.

Q- When did you pollinate and how far out on the main. What was the cross. We pollinated on June 18th twelve feet out on the main vine. The cross was 1985 Miller x 2009 Wallace. It was 5 lobes.

Q- What do you add during the growing season. We fertilize one a week with liquid kelp, essential and companion to help combat disease. After pollination we add 3-18-18 to the mix.

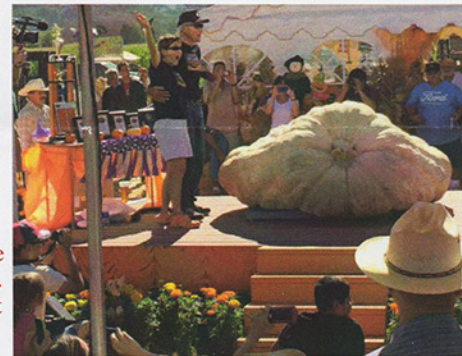
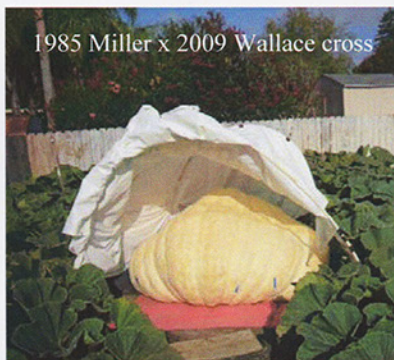
Q- How do you control Powdery mildew. Powdery Mildew is a big problem for us, as our patch is enclosed and doesn't get much air circulation. We use Neem oil and daconil about once every 10 days and spray early before any signs of powdery mildew appear.

We like neem oil because it also acts as an insecticide. This year we started spraying earlier and sprayed more often than in previous years. We kept powdery mildew at bay this year.

Q- How do you make your seed selections. We like proven seeds like the 2009 of course! Unproven seeds we look for good genetics, heavy to the chart if possible and preferably with no sag lines. We would like to get our hands on a 2323 Beni Meier of course! But there are s many great crosses out there capable of setting a new World Record.

Q- What seeds do you think the NAPA Growers might prefer next year. soon. Proven seeds like the 2009 Wallace, 1985 Miller, 2032 and 1894 Mathison. New seeds Cindi and I like include our 2036, 2058 and 2002 Hawkley, 2008 Neptune, 1916 Barron. We like California seeds as they have done well for us! We think a 2500 lb. pumpkin is possible in the next 2 years.

Q- What are your plans for next year. The Good Lord willing and if the creek doesn't rise, we plan to grow only 3 plants, to create more walking space between plants, and also to give our vegetable garden a little more space. Disease is our number one problem. We have already planted mustard seeds and we plan to use more drenches next year, possibly with rootshield wettable powder. We will figure it out this winter. **Our thanks to SNGPG for granting this interview. We hope everyone grows a PB in 2015! Pete and Cindi Glasier**



Pete and Cindi Glasier's soil analysis.

Graphical Soil Analysis Report

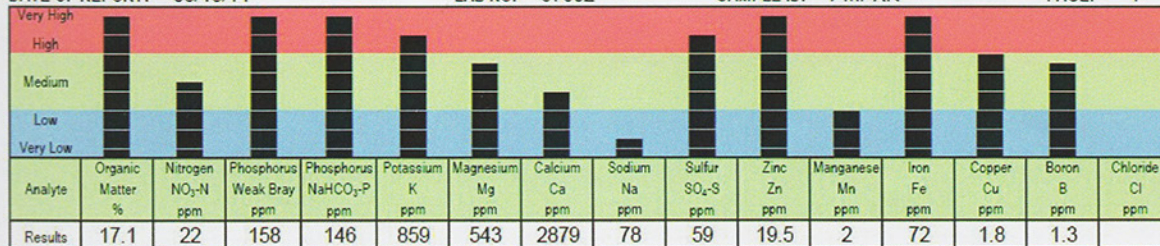
Glasier soil pH = 6.8

DATE OF REPORT: 03/18/14

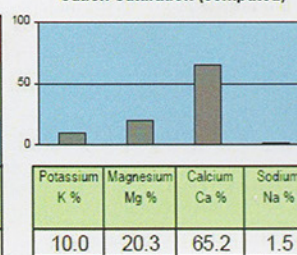
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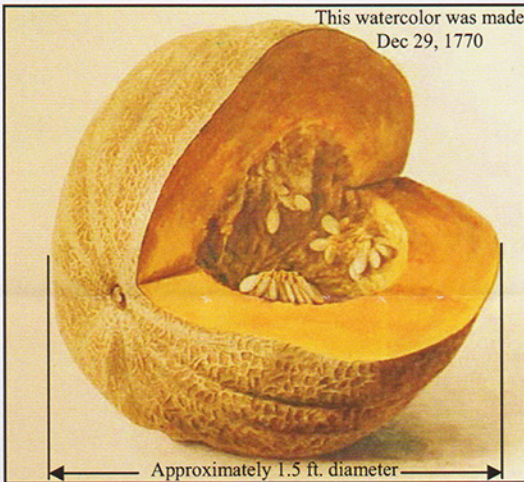
Percent Cation Saturation (computed)



Tom Andres is a member of the SNGPG. He is a Botanist, and an Honorary Research Associate from The New York Botanical Gardens (www.nybg.com) in the Bronx, NY. Tom has compiled for us, some rare insights to the origins of the species of *Cucurbita Maxima* which was domesticated from a wild South American fruit. This report provides a missing link of the centuries of domestication of this species prior to the selective cross pollinating years in the late 1800's by William Warnock and others. These wild ancestral maxima species, of course are related too, and, predate, by millennia, the filing by Howard Dill and Ray Waterman, for the Dills Atlantic Giant, Plant Variety Protection (PVP# 8500204) in Canada in 1986. A PVP is the botanical worlds version of a patent, and for 18 years it reigned supreme. Howards namesake was now attached to the AG seeds and big companies could not muscle in. For more information about *Cucurbita maxima* research publications access the following link <http://aob.oxfordjournals.org/content/97/2/165.full.pdf>

Squashes and pumpkins belong to several species, each with its own unique history of domestication from wild ancestors in different regions of the Americas. All giant pumpkins belong to a species with a most apt scientific name, *Cucurbita maxima*. They are indeed the largest fruits in the plant kingdom, and getting larger! The species was named in 1786 by Antoine Nicolas Duchesne, a French botanist who was far ahead of his time. Taught informally by the best botanists of the day, at the royal gardens at Versailles, he was ahead of his time in that both before and after him were taxonomists who described numerous new species that were actually cultivars of the same species.

How did Duchesne sort through this tangled taxonomy that tripped up so many others?.... He meticulously grew all the known cultivars of his time and made crosses while keeping track of the pedigrees. Best of all, is that he beautifully documented his work, with hundreds of detailed watercolors, thus today we can confirm exactly what he grew. I like to think of Duchesne as the Audubon of squash paintings, and like Audubon's birds, they are drawn mostly to scale.



This watercolor painting of a *C. maxima* fruit drawn by Antoine Nicolas Duchesne on December 29, 1770 resides at the Bibliothèque Centrale, Muséum National d'Histoire Naturelle, Paris. Photograph by Tom Andres.

The domesticated *Cucurbita* include some of the most diverse variable plant species in fruit morphology. Duchesne only had four cultivars of *C. maxima*, but numerous cultivars of *Cucurbita pepo*, that he recognized for the first time as all belonging to that species. He correctly determined how to distinguish the species based on flower structure, seed morphology, and the pedicel. For example, *C. maxima* is the only species with a soft, corky pedicel. The fruits, back in the 1700's were less than 100 lbs,



but still larger than the other species.

Cucurbita Maxima originated in South America, lying further south than any other species of *Cucurbita*. It reached Europe before reaching North America. The oldest record is found in some remarkable frescoes at Villa Farnesina in Rome, dated between 1515–1518.



The genetic diversity of cucurbits in Renaissance Italy, 500 years ago, were painted by Giovanni Martini da Udine (1487-1564), in the Villa Farnesina, Rome, and are on display today for the public to see. As noted above they include New World (South American) illustrations of *Cucurbita. Maxima* (A) and *Cucunis Melo* (B). These are the first illustrations of the Maxima species seen in Europe.

It may be possible to trace which voyage brought these seeds back to the Old World from the New World. Columbus was the first European to land in South America along the northeast coast of Venezuela in 1498 on his third voyage. I have been to Venezuela where I saw *Cucurbita maxima* fruits that look like those in the frescoes. But I suspect it was the Portuguese in the early 1500s who brought back the first *C. maxima* seeds to Europe from the coast of Brazil, where this species is more commonly grown.

It was over 200 years later that the first report I know of documenting

Imagine the excitement of the people in the sea-side ports of Portugal, when these ships returned from "The New World", in the 1500's, with a bounty of new *cucurbita maxima* seeds for their research and possibly an increased diversity of food sources.



C. maxima in North America is recorded. We have only a sketchy account from 1798, of a sea captain in Marblehead, England bringing back fruits from tropical America and a "Ma'am (Elizabeth) Hubbard" acquiring and cultivating them for the next 40 years. (thus the name Hubbard squash) Today there are cultivators of squash called Hubbard and Marblehead.

The Mammoth and Godrich pumpkins do not appear in the U.S. until the mid nineteenth century. Henry David Thoreau was one of the first to grow these seeds; that he procured from the U.S. Patent Office, which originally came from France. His largest was a 123.5 pounder. In addition to the Mammoths of today like the 'Atlantic Giant,' and 'Prizewinner,' there are numerous other *Cucurbita maxima* fruits. Here is a partial list of the groups: blue pumpkins, such as 'Jarrahdale,' and 'Triamble,' banana squash, such as 'Blue Banana' and 'Pink Banana,' buttercups, such as 'Kabocha' and 'Burgess Buttercup,' Hubbards, such as 'Boston Marrow' and 'Marblehead,' turban, such as 'Turk's Turban' and 'Marina di Chioggia.' Many that were unheard of a generation ago are very popular today, such as the bright red 'Rouge Vif d'Etampes,' the white 'Lumina,' and the extremely corky, warted 'Galeuse d'Eysines.'

Not all of them are giants. The popular 'Zapallito' of northern Argentina look like small, round zucchini. In the lowlands around Buenos Aires, there are wild growing baseball-sized fruits, likely candidates for wild ancestors which are probably wild progenitors. Occasionally, these hybridize with farmers' zapallitos and cause bitterness problems. There are other wild populations of *C. maxima* in Peru and Bolivia (see cover) that also have bitter fruits, so we do not yet have the complete story on where and how domestication took place in this species. We do know that the species was domesticated thousands of years before it reached the northern hemisphere. In fact, it precedes the cultures of the Aztecs, Incas, and Mayas. The domestication of crop plants is often

correlated with the rise of new civilizations, and this is no exception. There are

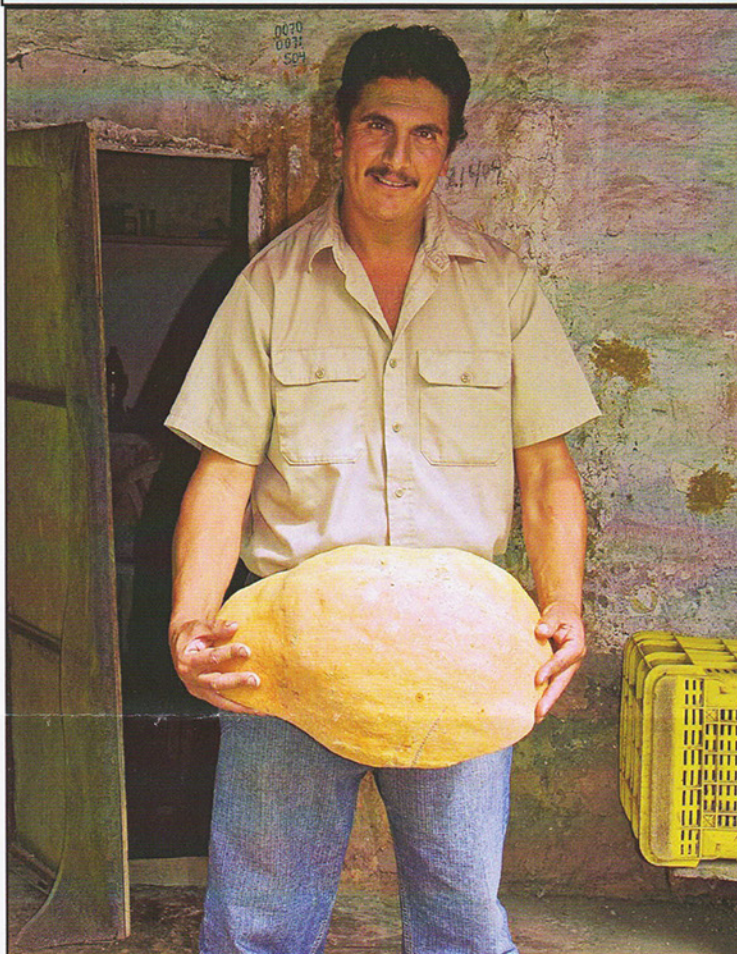


These South American fruit called Zapallito are probably the wild ancestors and or progenitors of the *Cucurbita Maxima* species and Atlantic Giants that the GPC growers are growing today.



ancient remains of raised agricultural beds in the Amazon, in northern Bolivia, and in the Andes around Lake Titicaca, that evidently supported dense populations with cultures as sophisticated as those more familiar to us. A number of crop plants were domesticated in these regions, but I suspect *C. maxima* played a major role in these little-known cultures that disappeared between 1400 and 1700 CE prior to contact with Europeans. Today the diversity in *C. maxima* is quite amazing. In the 2010 Yearbook of Seed Savers Exchange, 112

Shown below are two photos I took in 2005, of a farmer in Venezuela and landraces of squash from his fields. These are both probably the wild *C. Maxima* cousins of the Atlantic Giant pumpkin. We were looking at all the diversity of squash fruits in this Venezuelan farmer's field one day, when he said he had one more kind of fruit. But he harvested and sold them all the week before, for a festival, except for one that he brought out from storage. And that's the picture you see of the only uniformly orange fruit we saw that day. He called his *C. maxima* fruits, "churi" a name I had never heard before. It means "knife" in Spanish. Note that these semi domesticated *C. maxima* fruit are similar to those shown on the frescoes from the Renaissance era Rome, and have not changed in 500 years.



heirloom varieties are listed, most of them named. This doesn't include the modern hybrid varieties listed in more commercial seed catalogs. Let's say this makes a total 200 varieties grown outside of South America. This still does not include most of the diversity found in South America, where there may be well over a thousand landraces, including some large-fruited ones, being grown by



Venezuelan *Cucurbita Maxima* landrace fruit

individual farmers. Traditional breeders, such as the growers in the Great Pumpkin Commonwealth (GPC) therefore have a rich source of genetic resources to improve horticultural traits, fruit quality, and disease-resistance, as well as produce a one-ton pumpkin.

With special thanks to the Goldman Charitable Trust for supporting my and Michael Nee's research on cucurbits.

Outdoor Applications

Gardens, Patios
and Roofscapes

PERLITE PLANT GUIDE

The Perlite Institute Inc.

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Harrisburg, PA 17102 USA

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Email: info@perlite.org

HORTICULTURAL PERLITE - THE NATURAL GROWING MEDIA FOR OUTDOOR GARDENING

Just as horticultural perlite has served the professional grower for many years, it can help the home gardener solve a multitude of common problems. In addition to promoting drainage and aeration in heavy soils, horticultural perlite provides optimum moisture retention for successful plant growth.

"WHEN HORTICULTURAL PERLITE IS ADDED TO HEAVY CLAY SOILS, WATER PONDING AND SURFACE CRUSTING MAY BE ELIMINATED..."

When horticultural perlite is added to heavy clay soils, water ponding and surface crusting may be eliminated. In addition, plant roots may more easily penetrate the perlite/soil growing media and develop more fully. Horticultural perlite can be particularly advantageous in modifying the structure of general garden soil, patio plantings and roofscapes.

What is Perlite?

Perlite is a unique volcanic mineral which expands to about 13 times its original volume when it is heated to a temperature of approximately 1600 deg.F (871 deg.C). During the heating process, the mineral particles pop like popcorn and form a granular, snow-white material that is so light in weight it weighs only about 5 to 8 pounds per cubic foot (80-128 kg/cu.meter).

Each particle of perlite is comprised of tiny closed air cells or bubbles. The surface of each particle is covered with tiny cavities which provide an extremely large surface area. These surface cavities trap moisture and make it available to plant roots. In addition, because of the physical shape of each particle of perlite, air passages are formed in the growing media thereby providing excellent aeration. Fertilizer appropriate to the plants being grown should be added. Horticultural perlite is available in several different grades. The coarse sand size is ideal for general gardening applications.

Advantages of Horticultural Perlite

- Improves Aeration and drainage.
- Makes moisture and nutrients readily available to plants.
- Is organic and does not deteriorate.
- Has essentially neutral pH of 6.5 to 7.5.
- Serves as an insulator to reduce extreme soil temperature fluctuations.
- Is sterile and free of weeds and disease.
- Is clean, odorless, lightweight, and safe to handle.

General Garden Applications

Soil in vegetable and flower gardens can be conditioned by cultivating, with a fork or roto-tiller, to a depth of 6-12 inches (150-300 mm). A 4 inch (100mm) layer of a mixture of 1/2 horticultural perlite and 1/2 peat moss is worked into the cultivated soil. If the soil is rich in organic material, the peat moss may be eliminated. The same procedure may be followed in preparing lawn areas for sodding or seeding. Established lawns may also be renovated with horticultural perlite. The lawn area should be spiked or plugged and horticultural perlite spread on the surface and raked into the spike or plug holes. The perlite will work its way into the root zone to provide aeration and drainage.

If the garden area is very large, the home gardener may condition only the rows or areas where planting is to take place. Thus, if the procedure is continued for 2-3 years, the entire garden area will eventually be conditioned. Because horticultural perlite is inorganic, it will not deteriorate in the soil but will continue to function for many years.

When shrubs or trees are to be planted, a planting pocket 6 inches (150 mm) larger than the plant roots should be dug. A mixture of 1/3 soil, 1/3 horticultural perlite, and 1/3 peat moss or compost may be used to fill the hole and complete the planting operation. The shrub or tree should be thoroughly watered. The roots of the plant can easily penetrate and develop in the friable growing media.