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The Growers Solution

SUMMER 2005

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VOLUME 18 ISSUE 3

The Refractometer: An Old Tool or A New Tool?

By Jim Halbeisen

In the early 1980's our Growers people started using the refractometer as a tool for making quality comparisons in the field. The refractometer measured sugar or mineral concentrations in plants which could be used to compare the results of different treatments to various plants. Growers representatives soon found that as sugar or mineral concentrations increased, the plant itself was found to be more healthy and its fruit to be of higher quality and more productive. Brix readings from the refractometer correlated with their experienced observations of plant health and crop quality. The refractometer also confirmed the representative's contention that there would be better flavor and higher value to crops grown on the Growers Program. It showed customers when their produce and fruit keeping qualities could be counted on to help them with storage and shipping problems.

Growers customers and representatives

consistently found correlations in refractometer readings of forages and other feed crops and their nutritional value to the consuming animals. The higher the sugar or mineral readings, the more improved animal health and the lower the resulting feed cost.

Many different farming operations see this come about just by following the Growers Program of implementing high calcium liming additions to the soil and using GNS as a primary fertility source.

The refractometer has been used in industry for decades, but about 25 years ago when GNS people first inquired at their local agricultural institutions about using them for monitoring crop quality or as a tool for helping select various feeds and fertilizers, they sometimes would get a blank stare or, more often, an arrogant dismissal of the question. Much of the agricultural community treated the use of the refractometer with great disgust so, even today, very few farmers have adopted its use.

In the fall of 2003 it was with great interest

I received a call from a GNS produce grower wanting to know about refractometers. It seems in 2004, through a broker, he was going to be selling his melons to one of the largest food chains in North America. The food chain would be insisting incoming cantaloupes would have to average a Brix reading of 6 on the refractometer, and our customer wasn't sure his crop would meet the requirement. We knew his operation and assured him he would have no problem.

In fact his crop achieved the 6 Brix level quite easily. His normal procedure of packing ripe cantaloupe, at 18 or 19 Brix, tripled the requirement. This allowed him to go to a much greener picking, but his readings were still about twice the required minimum.

Finding the chains were using refractometers led us to contact the customer's broker. We found it very interesting that 50% of the cantaloupes he has to send to the food chain don't make the 6 Brix requirement and are rejected. Because the food chains had been

Please turn to page 2

Inside The Solution

The Refractometer: An Old Tool or A New Tool?

Jim Halbeisenpage 1

Brighter Future For Dairy On Growers

Jennie Henrypage 1

Growers In The Landscape Industry

Larry Webbpage 2

On The Road Againpage 3

Update On Finger Lakes Grapes

Doug Mackpage 4

Brighter Future For Dairy On Growers

By Jennie Henry

Allen Rhodes and his son's father-in-law, Lowell Grove, met me at the door of Allen's house near Columbiana, in eastern Ohio. Home to Allen since childhood, he and his two sons, Richard and Daryl, farm 325 acres of corn, hay, beans and oats. Besides the young stock and dry cows, they are currently milking 125 dairy cows.

Allen explained his recent past, "Four years ago in December, we lost our dairy barn and our herd of 48 cows in a fire. Our son, Richard, not married at the time, was living with us, and was milking 35 cows in a rental unit a mile and a half from home. We finally decided to rebuild and bring him into

the new operation. We built a 144 free stall barn with a double eight parlor. Cows were purchased or donated from 18 different herds, and they brought in 18 different sets of bugs which have multiplied and cross bred. We've had some problems, but, knock on wood, we're coming around.

"Richard has since married a Growers salesman's daughter," Allen laughed. "We got acquainted with Growers prior to the marriage through that relationship!"

The Rhodes family has been using the Growers Program for three years. "We noticed a fair amount of changes in the right direction," said Allen. "We like the way the cows react and milk

Please turn to page 3

Growers In The Landscape Industry

By Larry Webb

The show opens at 9:00 am. I'm all set and ready to go at 8:40. This doesn't happen very often. I sit down and look around and I'm drawn back to my beginnings with Growers. We were farming north of Alma, Ontario, up the road from our district manager, John Archibald. John started us on the program in 1995. Our orchard did well and I soon realized what great potentials Growers had.

On one visit John mentioned that he felt the Growers Program might do as well in cities as it has done on the farm. About that time our friend Dean Irwin had commented he would like to have his own business. Well, following a lot of conversation and some legal maneuvering, in 2001 we created Growers With Envi and the Irwin/Webb partnership. Since then we have been on a steady learning curve, with no end in site, as we try different applications and learn how to work with our ever growing customer base.

In the city we find the fields are a lot smaller, but they are harvested weekly which gives us higher application rates. A country hay field may get 4-6 gallons per acre a year, but in town, we may put on 15-20 gallons per acre in a year. And like on the farm; we also use a lot of Calcium. Our program does work as well for us in the city as the Growers Program has worked on the farm for the last 50 years, but, in either case, the programs have to be followed.

Our success has been helped



Growers District Manager John Archibald with Dean Irwin and Larry Webb of Growers with Envi at the Landscape Ontario Trade Show.

greatly by Mr. Henry and the staff in Milan. They arranged for my wife and me to meet and talk with Mr. Henry and tour the production facility. They really make you feel a part of the Growers team. We have also had huge support from Jim Halbeisen with numerous phone calls and meetings when he is in our area to help us understand how the program works. The roaming Jim Johns has also been a good supporter and takes a special interest in our progress (maybe because he and Dean are avid sailors?). We moved away from the Growers Chemical Company name because of the urban consumer's dislike of the word 'chemical'. Growers With the Environment, shortened to Growers

Please turn to page 3

Refractometers

Continued from page 1

asking about Brix readings of incoming produce, the broker had been using the refractometer for 5 or 6 years. Before that they had been relying on the farmers to come up with the Brix readings, but so few of them had refractometers they had to do their own testing so as not to be embarrassed with rejections when they sent poor quality to the chains.

The best part of our conversation with the broker was the high compliments he gave to GNS customers. He emphasized that our customers, by far, have the best quality produce of all the producers he works with. It should be noted that the Growers people he works with are all firmly on the Growers Program of high calcium lime in the soil and GNS as a fertility source for the crop.

We are pleased to see refractometers are being used, where it counts, by the mainstream retail food chains. Unfortunately, this seems to be still without the blessings or interest of your agricultural institutions.

Therefore, produce growers selling quality to retail need to have their own refractometer as a tool to measure and monitor quality (unless the buyer or customer is a died-in-the-wool follower of agricultural institutions). ■

Refractometers: How Do They Work?

by Jim Halbeisen



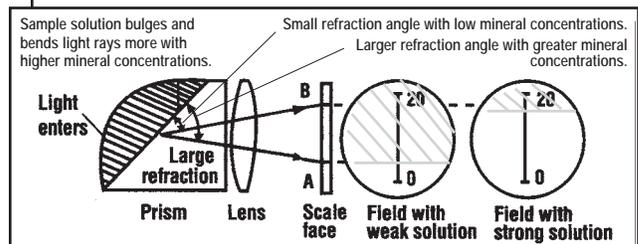
A refractometer is a simple instrument used to measure mineral concentrations of aqueous (water) solutions. They are easy to use and only a few drops are needed.

When light rays pass from air and into a liquid, they are bent or are refracted. This is seen looking at a spoon standing in

a glass of water that seems to be bent. Actually, the light rays are striking molecules of minerals, salts, sugars or whatever else may be in the watery solution and are refracted. The refractometer's prism magnifies the solution's refractive index and measures the degrees of light bending at the meeting point of the prism and the solution (where the spoon handle bends at the glass of water's surface). The refractometer measures the mineral concentrations and converts them into refractive index values called Brix readings. The greater the molecular concentration of minerals or sugars in the liquid, the greater the refraction and the higher the Brix reading.

Refractometers, also known by other names and found in other configurations, are used extensively throughout the food, agricultural, chemical and manufacturing industries and in research to measure all kinds of mineral concentrations in water solutions. Examples are: pharmaceuticals, cosmetics, medicines-urine and blood protein, battery acids, antifreeze, tissue fluids in plants, processing solutions, etc. The food processing industry uses refractometers for measuring sugar concentrations in soft drinks, juices, colas, nectars, lactic acid beverages. They are used to check flavoring solutions in canned foods, sugar concentrations of jams, marmalades, honeys, syrups, extracts, concentrates and other sweet liquids. Refractometers are used in the beer and wine industries.

For farmers planning to use refractometers on field crops, produce, etc., we feel it would be best to have theirs calibrated from 0 to 30 or 32 Brix.



Sample Fluid	Brix %
Alfalfa	4 to 22
Oranges	4 to 13
Carbonated beverages	5 to 15
Apples	11 to 18
Grains	6 to 18
Grapes and wines	14 to 19
Concentrated juices	42 to 68
Condensed milk	52 to 68
Jams and jellies	60 to 70
Strawberries	6 to 16
Sweet corn	6 to 24
Tomatoes	4 to 12

Brighter Future

Continued from page 1

on this program. We've had real good success with cows calving. The cows are cleaning and doing real well in reproduction. We probably have the same vet bill now with 125 milking cows as we did when we had 45 to 50. We've had to look at things differently. We've cut the DA's. Also, after 3 months on the Program, the hoof trimmer saw noticeably better feet.

"One reason we went on the Growers Program, is we had about seven twists in about 3 weeks time. Seven DA's."

Lowell added, "And they weren't normal DA's. The late lactation cows were twisting, which is not a normal situation at all. What did you do to correct that?"

Allen continued, "Well, the nutritional emphasis is different now. The nutritionist we had before worked for the feed mill, and he was selling their products to help secure his job. Growers has a different philosophy, a little simpler and a little cheaper. We like the results. The cows are not eating as much. Of the 127 cows we have now, we are feeding about 120 cows' worth of forage. They get all they want to eat and they are not hungry."

Lowell asked, "At what point did you start to see results after you started feeding Growers?"

Allen answered, "We probably started seeing results in about 2 to 3 weeks. It was in August, during hot weather, but the cows started becoming more active."

Lowell injected, "He gets on my case because he can't catch his calves anymore!"

Allen laughed, "Oh, definitely. As soon as they get off the colostrums, they get lime and Growers right in their milk mix. They get lime in the morning and Growers in the evening or visa versa.

"We had applied lime before, but not to the extent that Growers likes the high calcium applied. For every new seeding of alfalfa we'd put on 2 or 3 tons to the acre and that was good

for 3 or 4 years. And then we rotated around.

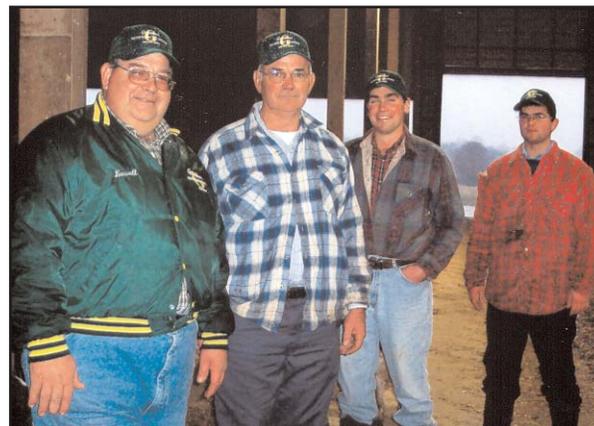
"Now we're putting on mega-lime! We're trying to do the whole works to get ahead. We have put 2 or 3 tons of calcium per acre on every year the last three years on all the acreage. We just dump lime and spread it. We've gotten some real breaks. The last lime we got was from people hauling for the water treatment plant. They haul it for free just to get rid of it. The quality of alfalfa has become better, tests show improving feed values and we see flavor changing from bitter to sweet."

In the past, the Rhodes family applied 150 units of ammonia, plus cow manure and dry fertilizer in the row to grow a crop of corn. Allen remembered, "We did grow some fairly decent corn. It was almost blood green on account of all that excess nitrogen. Now we're just using the liquid pit and we foliar feed the corn. We use no starter, and the costs are very favorable with the Growers Program. Last year we had 193 bushel on the field we checked. We use NA (Growers Nutritional Additive) on the second foliar pass. We even did it on the alfalfa and beans."

Lowell asked, "When you figure the discontinuation of purchased nitrogen, how important do you feel the lime has been to help stimulate the biological activity?"

Allen answered, "Something is definitely taking place down there with the lime, because, without nitrogen, you wouldn't expect to see the yield we had."

Asked about the farm's future, Allen replied, "All of agriculture is going to be a little tough, but I think we definitely have a better handle on facing some of that adversity by being on the Growers Program than people who are not. I really do. From what I see happening, we've got a whole raft of young stock coming on. Our



Growers representative Lowell Grove with Allen Rhodes and his sons Richard and Daryl of Columbiana, Ohio.

turnover is not as great. We are not losing as many. Our cull rate is less. The young stock are doing a good job on the Growers Program and our numbers are building. In spring, I don't know what we'll do with all of the cattle! And I'm looking forward to seeing more and better crops. It's just looking that way to me.

"I'm kind of looking forward to turning it over to the boys so once in a while I can go fishing. These Growers grown earthworms should be more appealing to the fish, because, hopefully, there's a little extra wiggle in the water!" ■

Landscape Industry

Continued from page 2

With Envi, allows us to link to Growers Chemical Company, and also gives us a name that is easily remembered.

Our markets include cities, conservation authorities, municipalities, zoos, private estates, lawn maintenance companies, farms and home owners. We are still working on the golf courses, but, so far, they are scared or reluctant to leave their chemicals for a safer program. Informed tax payers are demanding a change in our environment and that opens the door for Growers. When the door opens we walk in without hesitation because we know the program works. I'm starting to see people in the aisle now. It's show time; time to look sharp. The booth next to us is a small company that

supplies a vast number of chemicals to the turf people. We feel very fortunate to only need Growers and calcium to do a better job. ■



On The Road Again Summer 2005

This summer Growers Nutritional Solutions is scheduled to set up and staff booths at the following upcoming farm shows. It's a great time to stop in and review your plant food and mineral supplement programs, hear about new developments at Growers or just chat with the folks who make it all happen — your friends and neighbors.

- July 12-14 Wisconsin Farm Technology Days
Clark Co., WI
- July 19-21 Michigan Ag Expo
East Lansing, MI
- Aug. 2-4 Farmfest
Redwood Co., MN
- Aug. 9-11 Empire Farm Days
Seneca Falls, NY
- Aug. 16-18 Penna Ag Progress Days
Rock Springs, PA
- Sept. 20-22 Ohio Farm Science Review
London, OH

Hope To See You!

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Our Research is Your Profit



Inside:

- The Refractometer: An Old Tool or A New Tool?
- Brighter Future For Dairy On Growers
- Growers In The Landscape Industry
- Update On Finger Lakes Grapes

SUMMER 2005

Update On Finger Lakes Grapes

By Doug Mack, Growers District Manager
for Western New York State

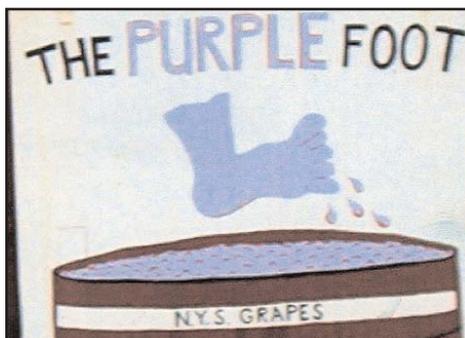
The following are interviews from the fall of 2004 with two of my grape growing customers, Randy Scotchmer of Hammondsport, NY, and Tom Hunt of Penn Yan, NY.

Randy has been a Growers user for 8 or 10 years now and is seeing some interesting things, so I am letting him talk about it.

Randy: "Well this year, we had a really wet growing season, so any fertilizers put on the soil were essentially gone after a short amount of time. I think that the Growers that was applied on the foliage kept nutrients in the vines so that they could continue to function. We had good green foliage and an average to above average crop this year, while our area's overall crop was down. A lot of producers were talking only half of a crop. I have to attribute a lot of my yield to the Growers (GNS)."

Doug: "Over the years, what have you seen, in terms of vine health or early growth?"

Randy: "I tend to get above normal crops, compared to what other people do, year after year after year. When their crops are really



Randy Scotchmer's barn door sign says it all about his wine grapes.

good, mine are a little bit better. When they are poor, mine are still a little bit better!"

Doug: "On the liming, have you done anything to change the calcium levels?"

Randy: "Yes, when I replant, I usually put on about 10 tons of high calcium lime per acre. And I'm able to get a fairly decent crop in the third growing season — with really large vine size. And this is on really poor soils too! We're not talking muck!"

Doug: "I do remember when I first came to call on you, we did some soil testing, and it called for 7 ton to the acre. That's a good indication of what we started with. You mentioned to me this fall, the extension agent was around.

Randy: "Oh yeah, the grape specialist from Penn Yan and two other Cornell people were here and they all commented on the good color of the foliage, freedom from disease, and the fairly large crop compared to what they had seen in other area vineyards."

Doug: "It's just not your opinion on what your crop is doing then?"

Randy: "No, no."

Doug: "Tell me about your new plantings."

Randy: "I do put 10 or 12 ton of lime per

acre on before I plant and plow that down. I have some neighbors across the lake that didn't do that three years ago when we both planted vineyards at the same time. Their vines have shoots up to the bottom wire, which would be about 3 feet high. This year my vines are up to the top wire, which is six feet high, have cordons out there and they produced 3 ton to the acre. I don't think they got any grapes off theirs.

Doug: "What year would they be getting towards three tons?"

Randy: "My guess is it'll take another year or two!"

Tom Hunt's story is somewhat similar to Randy's.

Tom used Growers on a limited basis the first year, but for the last three years he has been using Growers on his entire vineyard.

He was impressed this past year when, because of the wet weather, the roots were drowned out. He felt the foliar application of nutrients through GNS kept the plant active and noted that his leaf color was better than a lot of the control blocks.

Tom is putting on about 1.5 gallons per acre each time he sprays and is getting on a total of about 5 to 6 gallons of Growers per acre per year.

Tom has an interesting story from 2003 when there was a large yield in the area and buyers were taking a limited number of grapes. But, because his sugar was somewhat higher than the average at 17.3 brix, Tom was able to sell a larger percentage of his crop than he would have had his been just average sugar.

Although Tom has seen continued improvement in the three years using GNS in his vineyard, I now look forward to seeing additional improvements once the liming program he just started this past year begins to make changes to his soil. ■

The Growers Solution

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