AgrTerre Seed is a grower-owned, full-line cover crop, forage, and grass seed company with the experience, knowledge and expertise to offer sugar beet producers products customized to their unique needs.

As third generation farmers in the Magic Valley, Luke and Sara Adams are proud to be owner/operators of the Snake River Sugar Company. After many years of seeing the research and data showing the beneficial impacts of cover crops on soil health and learning about nematode trapping and biofumigation, they began integrating cover crops into their sugar beet rotation. By working with the University of Idaho under a soil health grant and searching out top quality, Idaho-grown seed, the Adams have focused on developing cover crop blends that directly benefit sugar beet and potato production.

After years of research and field trials, Luke and Sara opened AgrTerre Seed LLC to better serve the needs of their community. AgrTerre specializes in cover crops created for sugar beet and potato rotations. According to Adams, there are many misconceptions about cover crops and it is important to understand the traits and characteristics of each variety and plant a cover crop that is designed to meet your goals as a sugar producer. AgrTerre cover crop blends for sugar producers are designed to ensure the selection does not host sugar beet cyst nematode and, when necessary, aggressively targets and kills sugar beet cyst nematode.

With a team of cover crop specialists across the growing region, AgrTerre not only consults on seed variety selection, but can also help with cover crop rotation planning, planting practices, no-till practices, as well as effective water and fertilizer planning.

The customized cover crop blends AgrTerre offers do more than just cover; they are nematologist tested and curated to help control nematode while achieving individual cover crop and grazing goals. AgrTerre also offers blends that qualify for EQIP funding through NRCS.


The Sugarbeet is a publication of The Amalgamated Sugar Company LLC. The magazine is prepared by the Sugarbeet Quality Improvement (SBQI) Department to provide growers with up-to-date information on growing and harvesting sugarbeets. The magazine is also published to help upgrade the standards of the U.S. beet industry by providing a reliable source of information for agronomists, sugar company personnel, students, and others interested in this vital food crop.

Articles appearing in The Sugarbeet, with the exception of those items credited to other sources, may be quoted or reprinted without permission, however, mention of this publication is required when material is reprinted. Although every effort is made to ensure that the material is accurate, no responsibility can be assumed for errors or omissions which the editor has no control. Mention or illustration of methods, devices, equipment, or commercial products does not constitute an endorsement by the Company. Please address all communications to: Managing Editor, The Sugarbeet, 138 W Karcher Rd, Nampa, Idaho 83687, or by emailing calder@amalsugar.com.

The Sugarbeet is a free publication, published three times per year. Anyone can subscribe to the magazine by logging on to www.amalsugar.com and clicking on “The Sugarbeet” icon, or under the “Member Login” tab on www.amalsugar.com. You can also subscribe via telephone or email by calling 208-383-6500 or emailing info@amalsugar.com.
This issue of The Sugarbeet magazine explores our collective responsibility to take ownership of the future of our Company. Let me explain.

Prior to 1997, Amalgamated Sugar was owned by Valhi, Inc. Area sugarbeet growers, through their respective Grower Associations, had the responsibility to negotiate a contract with Valhi for the purchase of their sugarbeets. Growers were not required to elect a company-wide board of directors to oversee the management of the entire Company. Instead, the primary goal of the growers was to ensure they received good value for their sugarbeet crop. Under this structure, it was not uncommon for an adversarial relationship to exist between growers and the management of the Company.

In theory, that all changed in 1997 when Valhi sold the Company to the growers pursuant to a 30-year tax deferred transaction that gave the growers operating control (but not majority ownership) of the Company. For the first time, growers now had the responsibility to elect a board of directors from amongst the growers, and the Board had the responsibility to oversee the management of the entire Company, including electing and hiring leadership, establishing a vision for the Company, ensuring that processing assets were properly maintained and utilized, and working with management to maximize returns paid to growers for their sugarbeet crop.

The Valhi transaction was scheduled to be in place until 2027, at which time the growers had the right to complete acquisition of the entire Company. On August 31 of this year, Snake River Sugar Company and Valhi will wind up the 1997 transaction, more than eight years ahead of schedule. This is an incredible milestone for all our growers and their leadership, both past and present. More importantly, it serves as a strong reminder that our growers, together with their elected Board, own and control 100% of the Company.

So regardless of whether we are improving sugar content in beets, implementing better beet storage procedures, making long-term investments to improve the performance and reliability of our factories, implementing innovative changes to our safety procedures, or enhancing our sustainability programs, the responsibility to “own” our future has never been stronger. There really is no “us versus them.” Instead, we must “Take Ownership of Our Future” and continuously improve our strength and profitability for the collective benefit of our owners and employees.

John McCreedy, President and CEO
When it comes to Crystal brand beet seed, it’s all about the sugar because there’s no other seed that promises more. Thanks to a deep collaboration between growers and Crystal, record-breaking yields and sugar is an achievable goal. From the moment you open a box of Crystal seed you’re set up to do what you do best – produce maximum sugar.

**WHAT EVERY WANTS TO BE WHEN IT GROWS UP.**

Crystal brand sugarbeet seed is distributed by: ACH Seeds, Inc. 877-224-7333 or Crystal Beet Seed 218-236-4788.

Injury prevention is a challenge that all industries and companies have in common. How do we ensure that our employees return home at the end of the day without suffering an injury that requires first aid care or medical treatment? Or even worse, resulting in an employee's disability or the worst-case scenario, death?

In crop year 2016, from September 1, 2016 – May 31, 2017, Amalgamated Sugar experienced 114 employee injuries requiring treatment beyond first aid. Within our current crop year 2017, during the same time-period, Amalgamated Sugar has experienced only 49 injuries requiring treatment beyond first aid. This is an injury reduction of almost 60%. A reduction in injuries has been seen in all operating areas: receiving stations, warehouses and terminals, as well as factory locations. How has this been accomplished?

There are several actions that have been implemented, resulting in this reduction of injuries. These actions include improvements in training, greater accountability to policies and procedures, further in-depth incident investigations and performing equipment hazard analyses.

The ultimate reason for our reduction in injuries is credited to our employees working day in and day out in the operating areas. At the beginning of their shift and prior to conducting their daily tasks, our employees are completing a “Take 5” hazard assessment. Within Amalgamated Sugar, approximately 2000 Take 5s are being conducted each week.

The **Take 5** process includes five basic steps:

1. **STOP**: Engage brain, work is starting, think about the task at hand
2. **LOOK**: Identify any hazards or potential dangers
3. **ASSESS**: Determine the hazards to you and others around you
4. **MANAGE**: Implement controls, communicate with others
5. **SAFELY**: Complete the task

"Taking 5" is an action that we can all take, whether performing a task ourselves or directing others to perform a task. The key to this process is taking the identified hazards seriously. Don’t accept the idea that “It will never happen to me.” It can happen to you and it has happened to those with this belief. Take control of the hazard and stop the injury from happening.

Mike Shuey, Corporate Safety Director
Process equipment and machines that have evolved from 140+ years in the sugar industry allowing farmers to clean, de-stone, and chip sugar beets or root vegetables for animal feed.

EXPERTISE  RELIABILITY  EXPERIENCE  SERVICE  EXCELLENCE

The Putsch® Beetmaster
Outstanding washing and stone removal capabilities. Attaches directly to any type of bio-energy plant.

The Putsch® Chipmaster
Adaptable and compatible with many pay loaders. Processes a wide variety of root vegetables.

Suicide Awareness and Support, Student Council President, and STEM to name a few. Additionally, she was active in Varsity basketball, softball, cross country, and competitive summer softball. When she is not busy working at the Homedale city pool or showing at the county fair, Kendall can be found developing a strong work ethic helping her parents care for their livestock, harvesting hay, and driving corn trucks. Kendall plans to attend the University of Idaho this fall, majoring in Engineering. She hopes to one day be a part of a team of engineers working in the agricultural industry to improve process, reduce environmental impact, and reduce inputs.

NOAH is the son of Daniel and Stephanie Navarrete of Ontario, Oregon. He is a 2018 graduate of Ontario High School. Some of Noah’s achievements include: FFA participation at the county fair, Scholar Athlete, lettered four years in football and baseball, 2 years in basketball, as well as multiple years as a member of the Greater Oregon League football and baseball teams. In the community, Noah has coached youth flag football for Ontario Recreation Department and volunteered at Ontario High School youth camps for football and basketball. He plans to stay grounded in Agriculture attending Eastern Oregon University this fall majoring in Agriculture Business. Noah states, “I have always wanted to become a farmer just like my dad. As I grow up, I realized there is a lot more to farming than just driving the tractor up and down the field. Riding along and working side by side with my dad has exposed me to the many opportunities in the field of agriculture.”

Isabel Rast is the granddaughter of Rod Panike of Weiser, Idaho. She is a 2018 graduate of Emmert High School with a GPA of 3.56 in a class of 187 students. Isabel has been participated in culinary arts competitions and has been active in her school, lettering in varsity soccer. As part of her senior project, Isabel committed her time and effort to a local dog grooming company. She combined many skills to help improve the company and their profits. Isabel has also spent many hours helping on her aunt’s farm and developing a love for all animals. She plans to attend Brigham Young University – Idaho, majoring in Animal Sciences to prepare her to become a veterinarian. Her dream is to one day open her own animal clinic.

Congratulations to Kendall, Noah, and Isabel as the 2018 Nyssa-Nampa/Amalgamated Sugar Scholarship Recipients.

Terry Cane, Senior Agriculturalist

Each year, The Amalgamated Sugar Company LLC partners with the Nyssa-Nampa Sugarbeet Growers Association to present up to three scholarships to high school seniors selected from the Nyssa and Nampa Districts. This year the scholarships are valued at $1,000 each. To qualify, individuals must be the son, daughter, or grandchild of a Snake River Sugar Company Member, a current high school senior that is actively involved in agriculture, school, and civic activities, and pursuing higher education in an Agricultural field of study.

The 2018 Nyssa-Nampa/Amalgamated Sugar scholarship recipients are Kendall Nash, Noah Navarrete, and Isabel Rast.

KENDALL is the daughter of Steve and Leslie Nash of Homedale, Idaho. She is a 2018 graduate of Homedale High School ranked number one in her class of 86 students with a GPA of 4.0. She has a very long and impressive list of achievements in her school and her community including being a FFA member, Fellowship of Christian Athletes, Business Professional of America, National Junior Honor Society, National Honor Society, Mayor’s Youth Council, Sources of Strength...
Sustainability has become a new buzz word in households used to describe the social and environmental responsibility of a company and their products. A recent study suggests nearly eight (8) out of ten (10) consumers consider this factor when purchasing food. Until last year, there had not been a widely established and respected metric for evaluating the sustainability of sugarbeets and its staple product, sugar.

This spring, Amalgamated Sugar joined Field to Market®, a leading multi-stakeholder initiative working to unite the agricultural supply chain in defining, measuring, and advancing sustainability in U.S. food, fiber and fuel production. As a member of Field to Market®, Amalgamated Sugar is collaborating with agribusiness companies such as Syngenta, Simplot, Cargill, John Deere; retailers including General Mills, PepsiCo, Mars and Kellogg; civil society groups like Ducks Unlimited and Pheasants Forever; along with a variety of grower organizations and academia. As a collaborative effort, Field to Market® looks to help growers measure sustainability performance and catalyze opportunities for continuous improvement.

Field to Market’s® Fieldprint Platform compiles data regarding the use of agronomic inputs, topography of soils, conservation practices, water management, and other factors involved in crop production to produce a Fieldprint Analysis: a concise depiction demonstrating a crop’s overall sustainability. In order to collect this particular data, Amalgamated Sugar will utilize Syngenta’s AgriEdge database program, Land.db, to establish the Sugarbeet Fieldprint.

While many of our Members currently utilize sustainable practices, a handful are already using Land.db to track their crop inputs and field performance. Of these Members, eight participate in Syngenta’s Sustainable Solutions Program, providing the necessary data to produce Amalgamated Sugar’s Sugarbeet Fieldprint. We thank the following Members for participating in 2017 and will be asking more Members to participate in the future:

- Darrington Farms, Inc
- Bruce Foster, Mark B. Foster
- Hansen Farms of Idaho, LLC
- Heglar Creek Farms
- V. O. Enterprises
- Krown Farms
- Moss Farms
- Triple A, Inc

With a Field to Market® Sugarbeet Fieldprint, Amalgamated Sugar will demonstrate to current and future customers, consumers, and stakeholders our commitment to driving continuous improvement of our product—providing a sustainable future for Members now and generations to come.

Aaron Firth, Crop Consultant and Agriculture Sustainability Coordinator
When you first walk into Weiser Classic Candy in Weiser, Idaho, you are greeted with smiling faces from both customers and from those behind the counter. A warm welcoming "Hello, how are you doing?" and a "How may we help you today?" from the staff makes you feel right at home. The genuine care in their tone and demeanor give a sense that they will do anything to help brighten your day. As you look around the store local art lines the walls, candy boxes are stacked in the corners, and sweet treats fill the front counter case. Your eyes begin to feed your stomach as you look around and then your nose takes over with the smell of fresh baked breads and popcorn. As I approached the counter, my eyes caught a saying on the wall behind the counter: "If your friends are worried about eating too much chocolate… eat theirs!" All I could do was smile to myself about how fitting that saying was for an establishment like this.

Sitting down with Patrick Nauman, co-owner of Weiser Classic Candy for the past eleven years, I found a guy who was jovial and smiled from ear to ear. It soon became apparent that he would gladly talk about candy anytime you wanted him to.

As a kid growing up in Weiser, Patrick would go to the local candy store, which at that time was called, Fawns Classic Candies. He and others would sit there for hours and get their sweet tooth fix, knowing in just a few short years they would leave Weiser, head off to college and start their lives. For the next eighteen years he would work in the service industry for cruise lines. A few of those years would be spent going to college, nine were aboard ships and four years were working at their corporate offices.

When coming back home to Weiser one Christmas and driving through town, Patrick noticed that the old candy store was for sale. He recognized the Realtor's name as someone he knew and quickly gave her a call to find out more information. Patrick made a decision that Christmas, while back home in Weiser, to make an honest run at trying to buy the old candy store. After returning to work in January, things for Patrick started moving fast. The previous owner of the candy shop granted Patrick a little more time to go over the books and come up with a reasonable offer to buy the candy store. Just six months later, Patrick was holding the keys to what is now Weiser Classic Candy.

The candy store has been a staple in the Weiser community now for a total of 34 years. It is still running strong with over 250 products total. Some products are present year-round while others are only seasonal. Seasonal or not though, 100% of the store's sugar is White Satin Sugar and roughly 85% of the products that Weiser Classic Candy produces contain it. Annually, they use approximately 4,500 pounds of granulated, powdered or brown forms of White Satin Sugar, depending on the product, with the most popular by far being their caramel candies. Patrick's goal for Weiser Classic Candy is to use as many local sources as possible for his products. This includes huckleberries, butter, cream and of course, White Satin Sugar.

Over the past eleven years Weiser Classic Candy has grown from just a local hot spot to a world-wide sensation. Weiser Classic Candy is being sold in 140 different stores, in seven different states across the nation and has a range of sales from Canada to Ireland, Germany and the U.K.

Weiser Classic Candy employs 17 people from the Weiser area both full and part-time. When asked, "What would be your elevator pitch for someone when talking to them about Weiser Classic Candy for the first time?", Patrick replied perfectly, "It is a small batch of homemade chocolate only made with local ingredients."

Weiser Classic Candy can be found all over the Treasure Valley and surrounding areas now with only the sky being the limit for Patrick and Weiser Classic Candy's success. Amalgamated Sugar would like to thank Patrick and the staff at Weiser Classic Candy for their years of support, not just of our products, but for our community as well. May your future continue to be successful and “sweet”.

Aaron Searle, Crop Consultant
The life stories of Barry Christensen and Robert Reed include many years of farming history in the Upper Snake region of The Snake River Sugar Company growing area. As individuals, they built farming operations that have withstood the test of time, however more importantly, they formed a friendship they cherished until their final days—a friendship so strong it has been passed on to their families and farming operations. The legacies which Barry and Robert created included the most important values of their lives: family, friendship, and farming!

Barry Christensen

In a time when large lines of credit and GPS guided equipment were unheard of, farmers had to rely on partnerships with one another in order to make their operations successful. Early on, Barry was joining forces with neighbors and friends including the Polatis brothers, Richard and Dan, and Robert Reed. These budding relationships were Barry's start to building B.J. Christensen & Sons, the legacy which he would pass on to multiple generations. Throughout years of working with each other, Barry and Robert cultivated a strong and edifying friendship beyond the field that often led to amusing mishaps and adventures. During one snowy harvest, Barry and Robert left the tractors in the field and went antelope hunting. When they came back after a couple of days to check on the field, they discovered in their excitement to leave, they had left Robert's tractor running the entire time! Now, stories, like this one, of the two men's antics are preserved and retold in family memory.

Barry grew up helping his father, Wendell, on their family farm in Goshen, Idaho. With farming in his blood, Barry started growing sugarbeets with U & I Sugar on farms in Liberty, Mountain Home, and Taber. In the early 1960’s, Barry moved his operation to Rockford, Idaho onto what is now fondly known as the “Home Place.” After the closure of U & I Sugar, Barry instead focused on growing potatoes until 1997 when Amalgamated Sugar opened the Liberty receiving station outside of Rockford. Excited at the opportunity to grow sugarbeets again, Barry purchased the majority of the beet shares that B.J. Christensen and Sons still grow today.

Since his initial startup, Barry, and later his sons, Thane and Brad, have grown their operation to include farms surrounding the “Home Place” on the Fort Hall Reservation, the Firth area, and most importantly, on his grandfather’s original farm and homestead in Goshen. This family farm had special sentiment to Barry and was one of the first farms to have a well in Goshen. The well was hand dug by Wendell and Barry’s grandfather, Joseph, in the early 1900’s.

Before the passing of Wendell, Barry and Thane were able to once again plant sugarbeets on the old homestead and see them trucked thirty miles to the Liberty station. Thane said the family would never forget the gift and pride Wendell had the entire season
The entire Barry Christensen family is interested in sugarbeets, maybe because Barry has always been associated with the beet sugar industry. He recalls that as a boy he helped his father, Wendell Christensen, Shady, Idaho, with beets. Barry plans his program ahead of time and because of a timely operation and good management (including fall preparation and early planting) he is able to get the best from sugarbeets. As present he is buying new farmland near Rockford, Idaho where he plans to have about an acre of sugarbeets in two years in rotation with potatoes, grain and alfalfa. Referring to the Christensen operation, Fieldman Wayne Butler said that fall bedding opens the way for easier planting with more uniform moisture and consequently a more uniform sugarbeet stand. This also makes it easier to control weeds with fall bedding,” declared Butler. “The ridges warm up much earlier and germinate the weed seeds; then the surface of the germinated seeds are removed by harrowing and the beet seed is planted in the moist soil. The beet seed germinates in advance of any weed seeds remaining in the bed.”

Over the years, Barry along with B.J. Christensen and Sons, have succeeded in growing “bottoms” as Wendell proudly put it, and he leaves behind a rich history of farming and growing sugarbeets in Southeastern Idaho. More importantly, he leaves his family to carry on his legacy. B.J. Christensen and Sons has a strong future with fourth and fifth generations. The entire Barry Christensen family is interested in sugarbeets, whether it was sharing a crop of potatoes or sugarbeets, selling river boats from their shop, or chasing antelope on the desert. It was good odds that if one of them was into something, the other would be too. Every harvest, you could find Reed Farms and B.J. Christensen equipment and trucks intermingled in one field helping each other finish up work. They developed many traditions together which are sure to carry on through the generations.

There is a story within the Reed family of Bob and his grandson, Bradley, which involved a friendly competition of who got to drive the beet planter one spring. A young Bradley had just learned how to plant beets and was excited at the opportunity. Bradley went to bed planning to get an early start the next morning. However, as Bradley arrived at the field, he found his Grandpa Bob already planting. Sharing his grandfather’s love of farming, Bradley started his farming story with a John Deere 4020 tractor which continues working hard on Reed Farms to this day. In the early years, Bob grew wheat, barley, alfalfa, and sugarbeets. Moving hand-lines, picking lava rock, hoeing weeds from beet fields, and harvesting were some of the many jobs required on the farm and Bob kept most of the work within the family. Like his old John Deere tractor, he wanted his legacy to stand the test of time, just as he wanted his love of farming and working hard to be passed on to his children.

Robert “Bob” Reed

Farming in the 1940s and ‘50s had a different look than it does today. Siphon tubes and hand-lines marked farm ground and moving pipe kept local teenagers busy throughout the summer. Sugarbeets required hoeing by hand to keep the weeds down and open-cab tractors pulled two and three row harvesters in the fall. Robert D. Reed grew up during this simpler time and has since “experienced it all” as farming continued to progress to where it is today. Bob’s passion and love for farming sprouted at an early age while growing up on the farm that his grandfather, Joseph Edward Reed, purchased in 1929. While in high school, Bob learned the value of hard work as he helped on LaVar Murdock’s farming operation breaking undeveloped and sagebrush-riddled ground to make way for new farmland. Upon graduation, like most young men, Bob thought he had the world by the tail and he knew the only thing he wanted to do was farm. In 1967, LaVar and his brother Quentin Murdock helped Bob get his start on the very land he had helped clear of sagebrush years before. With the help of his wife, Marian, and their six children to come, a young Bob would grow and tend his dream of farming to expand across the Riverside, Rockford and Liberty areas west of Blackfoot.

Bob started his farming story with a John Deere 4020 tractor which continues working hard on Reed Farms to this day. In the early years, Bob grew wheat, barley, alfalfa, and sugarbeets. Moving hand-lines, picking lava rock, hoeing weeds from beet fields, and harvesting were some of the many jobs required on the farm and Bob kept most of the work within the family. Like his old John Deere tractor, he wanted his legacy to stand the test of time, just as he wanted his love of farming and working hard to be passed on to his children.

Bob loved watching his crops come to life every spring and with the new growing season came many memories and new friendships. Many stories about Bob often included his good friend and neighbor Barry Christensen. They forged a bond in the early years of farming on Liberty Road and continued to help each other through the good years as well as the bad ones. Bob and Barry entered into many deals together,

WITH SUGARBEETS IN THE FALL, REED FARMS AND B.J. CHRISTENSEN FARMS INTERMINGLE IN ONE FIELD HELPING EACH OTHER FINISH UP WORK.
Bob has withstood hardships and enjoyed many successes since his high school years when he decided all he wanted to do was farm. The future of Reed Farms looks strong and promising with his son, Terry, and grandchildren, Brooke, Bradley, and Brady’s wife, Bryce—the fourth and fifth generation of Reed farmers, leading the way. He has left a legacy of honesty and hard work, which in year 2020, will celebrate a century of Reed farmers on his grandfather’s land in Riverside. He leaves behind his wife, LaFaye, and his children and grandchildren whom he was so proud of. He is a man who holds a special spot in Southeastern Idaho farming history and is a man who will be missed by all who knew him.

# Harvest 2018

**The Sugarbeet**

**NOTHING AS REWARDING...**

As watching that last load of sugarbeets leave the field. Knowing you started out with a seed, tended, nurtured and helped it meet its full potential—from seed to abundance. That’s why I love to bring my daughter out with me. She learns lessons about work ethic, putting your heart and soul into your work and persistence. It’s the exact same way I was taught.

Farming has changed over the years but one thing hasn’t. Betaseed has been our partner across generations. They understand our needs from disease control to tonnage and sugar content. Using research to stay one step ahead, they give us confidence for the future.

**Rita Herford**

Gentner-Bischer Farms
Minden City, MI

To hear more of Rita’s story go to: betaseed.com/en/rita

© 2018 Betaseed, Inc. 5705 W. Old Shakopee Road, Suite110, Bloomington, MN 55437

---

**Union Recognitions**

Eden’s note

At Amalgamated Sugar, we recognize the importance of each and every employee, and that their every day contributions are key to our continued success as a leading company in the beet sugar industry. Below are two employees whose hard work and daily dedication allow them to continue to rise to the top of their game. Their performance made them an easy choice for their supervisors when the assignment was given to highlight extraordinary employees. We know there are many more strong employees within the Company possessing the attributes described in the following paragraphs and look forward to recognizing them in future issues of The Sugarbeet.

The purpose of this letter is to formally and publicly commend Jace Simpson for the excellent work he has provided at the Nyssa Warehouse.

Throughout his tenure with Amalgamated Sugar, Jace has maintained a “can do, will do,” attitude. The level of work that Jace provides for the warehouse exceeds our expectations. Bill Belichik, the New England Patriots coach, tells his players “do your job” and that is exactly what Jace does.

When I told him I was going to have him recognized, his response was “I just do my job.” I have worked with many good employees and yet, Jace always raises the bar. He is one of those employees that all supervisors want on their team.

Here are some of the things his coworkers say about him:

- “Jace is an over achiever.” - Luis Gonzales
- “Jace is diligent on his job and is always on the go!” - Johnnie Simpson
- “He is honest, trustworthy, consistent and a good person.” - Rex Knudson

The praises from his coworkers highlight the fact that he is very deserving of recognition. In an era where many of these qualities are disappearing from the work place, the work and attitude that Jace demonstrates as the Brown Lead is an example worthy of imitation. What particularly impresses many of his coworkers is his level of work. He cares about quality, he knows his name is on each bag, each case, and each pallet he makes. His example even has a positive impact on the attitude and productivity of the crew!

Jace Simpson is a hardworking family man, who has been with Amalgamated Sugar for 9 years and is truly deserving of this recognition.

**Diego Castellanoz**

Facility Manager, Nyssa

As Ron’s supervisor I know that when I give Ron an assignment that the task given will be done in a professional and timely manner and all trouble shooting will be dug into until a complete and explainable answer is achieved.

When given a difficult task, Ron doesn’t give up or decide that something is “good enough” or let coworkers give up until he knows the best results have been achieved.

Ron has been instrumental in training and sharing his mechanical skills and abilities in electric hoist, gearboxes, CO2 compressors, stream turbines, and all other mechanical aspects of running a sugar factory.

When new employees are assigned to my crew they are partnered up with Ron because I know that Ron will take them under wing and teach them what Amalgamated Sugar’s expectations of being a dependable and valued employee are.

Ron understands the personal commitment it takes to become one of Amalgamated’s top employees and has made several sacrifices in his career to see that the factory ran to the best of its abilities on his watch.

Ron is well respected by all coworkers and his opinions and ideas are valued and are often asked for by experienced coworkers and supervisors.

Thanks Ron for all your dedication and years of service.

**Terry Gifford**

Mechanical Supervisor, Nampa

Ron Scott, Maintenance Lead, Nampa

Jace Simpson, Brown Lead, Nyssa

Kyle Gelles, Crop Consultant
Thane and Connie Christensen, Son, Daughter-in-Law of Barry Christensen
Photos Courtesy of the Christensen and Reed Families

© 2018 Betaseed, Inc. 5705 W. Old Shakopee Road, Suite110, Bloomington, MN 55437
Two factors control your approach to fall soil preparation: the preceding crop, mainly from the standpoint of crop residues and chemical residues; and what you hope to gain from fall preparation in benefits for next year’s crop.

The first consideration - how crop residues are handled - will be influenced by what the crop residue will be used for. Will residues be turned under for green manure? Is the organic material needed to stop soil compaction? Or does the soil need additional organic material for faster water infiltration? Perhaps the organic matter is needed to act as a barrier against wind erosion?

These four basic purposes will closely determine how organic material is handled. Because different growing areas have different problems, crop residues should be used according to your local needs - in a program (which might be quite different from practices in other areas) that best solves your own problems.

Organic Matter as Green Manure

If crop residue is to be used as green manure, early breakdown is very necessary once the organic matter is worked into the soil. This takes moisture, heat, and adequate nitrogen. A green manure crop does add substantial organic content to soil and it adds to the soil tilth - but, it will also be depleted at a faster rate than dry residue. Its primary purpose will be to stimulate plant growth.

To be most effective as green manure, the crop residue should be disked into the soil together with ample nitrogen for decomposition. The ground can either be deep-tilled, so the material is well covered, or it can be plowed down. Plowing and sealing the soil surface will hasten decomposition in most soils.

Under most conditions, the soil should not go through the winter in a sealed condition. Rather it should be well roughened to let air and moisture penetrate the surface. Roughing should be done at 90 degrees to the slope of the land. Fall bedding will lend itself well to this kind of soil preparation.

If the residue should be stubble from a grain crop, you must consider how best to control volunteer grain in the succeeding crop. This thought also relates to weed seed germination. The seeds (grain or weeds) will easily absorb moisture, yet may not retain it long enough to germinate. To make sure that maximum germination will take place prior to spring planting, the soil should be loosened enough to cover the seed before water is applied to the field. This should be done while soil temperatures are high, to maintain maximum seed germination.

Dry Organic Matter for Soil Tilth

If dry residue is to be used as organic matter to improve soil tilth and plant stimulation, it should be mixed with the soil to the depth of the plow sole. Soil moisture (as in the above example of green manure) along with soil temperature and adequate nitrogen must be present to break the residue down before the new crop is in need of it. If faster breakdown is desirable, some method of shredding will be a big help. Steel-flailed beaters or shredders work exceptionally well. Soil prepared by this method lends itself well to a bedding program.

Faster Water Penetration

Is the crop residue to be used to speed water penetration into a soil resistant to sprinkler irrigation? This approach needs...
a somewhat different management. The residue should be worked into the upper soil surface with provision made for soil aeration underneath the organic layer. Again, this program can be fitted into a fall bedding program.

Wind Erosion Control

Wind erosion can be minimized with the aid of crop residues, but again this will involve special soil management. The residue should be well anchored to the soil, but should have a large part exposed to the soil surface. It should not be broken down until the crop can tolerate the wind. To best establish this relationship between residues, soil, and plant emergence, there are several tillage tools far superior to a plow. Again, fall bedding can be a good help in this approach to soil management.

The first four purposes discussed previously can very well overlap one another. Unfortunately, wind erosion control with crop residues does not immediately lend itself to the other objectives.

A common error of fall preparation is committed by those growers who only partly prepare their fields in the fall. They find (or should realize) that work finished in the spring is more costly and is more detrimental to the soil structure. Fall preparation should be complete - from fertilizing to leveling - to allow a minimum of work in the spring.

One important fact that must be kept in mind is that fall preparation must leave air pockets in the soil. The exclusion of air pockets in fall-prepared fields is the main reason why their soils “run together” and seal over, causing a heavy crust condition in the spring. There are two methods that will relieve this problem. The first (and most important) is to be sure that the soil is prepared while it is dry enough to create large clods. These clods should range in size from walnuts to apples. The air pockets between these clods will provide soil aeration and will retain most of the natural moisture received on the field throughout the winter. Freezing and thawing through the winter will naturally mellow the soil and minimum tillage will be needed prior to spring planting. The more times a tractor wheel crosses the soil when it is moist and mellow, the more dry pockets will be created. These dry pockets become compacted and dry, and will too often occur in the seed placement zone to retard or stop seed germination. The grower must then irrigate, or wait for ample rain to bring crop emergence.

Soil moisture, sufficient for rapid, even germination and emergence, has been one of the major problems in our beet producing area. It is a problem that can be overcome mainly by foresight and good timing. It does not take nearly as long to prepare soil in the fall as it does in the spring, and valuable spring moisture and growing time will not be lost in the process.

Theodore “Ted” Gessel, Extension Agronomist
Reprinted from “The Sugarbeet, Fall 1972”

AS A LARGELY UNTAPPED RESOURCE, THE BENEFITS OF PCC MAY BE MORE THAN MEET THE EYE.

Precipitated calcium carbonate (PCC) or “spent lime” is a byproduct of the juice purification during the sugar extraction process. Historically, this product has been stockpiled at all Amalgamated Sugar facilities: Mini-Cassia, Nampa, Nyssa, and Twin Falls (pictured above at Nyssa, OR). The actual amount of PCC produced in a year depends upon two key factors, slice rate and beet quality. When beet conditions degenerate, more lime is required for the juice purification process. In general, the factories will produce approximately .07 tons of PCC/ton of beets sliced per year. The factory at Mini-Cassia alone produces between 50 and 60 tons of PCC per hour.

There are several types of costs associated with stockpiling the PCC, including operating costs for moving the product, the real estate costs required to stockpile the PCC, and costs for managing the stockpiles to minimize dust generation.

Historic Use

PCC has several historic uses, including pH adjustment and disease suppression on sugarbeet ground. Unfortunately, most farms in southern Idaho have calcareous soils with pH levels that range from 7.5 to 8.2. There are exceptions to this in areas, such as Camas Prairie (Fairfield) and Eastern Idaho.

The area around Ashton also has some areas with pH levels low enough to impact yield adversely (pH 4.8 to 4.9). A 2010 project conducted by the Yellowtowne Soil Conservation District in that area showed the advantages of using PCC to help to increase yields and to improve groundwater quality. Over a three-year period, PCC was applied using variable rate technology, but on average 2 tons per acre per year was applied. During this study, barley fields showed the best response to lime applications resulting in crop yields that were double the yields prior to application. Besides pH adjustment, applying PCC can lead to an improvement in soil tilth making it easier to work the ground.

In addition to serving as a soil amendment (pH and soil tilth), PCC has been proven effective in suppressing Aphanomyces root rot in sugarbeets, resulting in increases in stand counts, tons harvested, and recoverable sugar. Studies conducted by Michigan Sugar over a three-year period showed a significant increase from all PCC rates applied compared to the untreated plots in net dollars per acre, sugar per acre, and tons

Photos by Clarke Alder

LIMEFIELD IMPROVEMENT

An [Un]Spent Resource

Resource

The Sugarbeet, Fall 1972

PCC has several historic uses, including pH adjustment and disease suppression on sugarbeet ground. Unfortunately, most farms in southern Idaho have calcareous soils with pH levels that range from 7.5 to 8.2. There are exceptions to this in areas, such as Camas Prairie (Fairfield) and Eastern Idaho.

The area around Ashton also has some areas with pH levels low enough to impact yield adversely (pH 4.8 to 4.9). A 2010 project conducted by the Yellowtowne Soil Conservation District in that area showed the advantages of using PCC to help to increase yields and to improve groundwater quality. Over a three-year period, PCC was applied using variable rate technology, but on average 2 tons per acre per year was applied. During this study, barley fields showed the best response to lime applications resulting in crop yields that were double the yields prior to application. Besides pH adjustment, applying PCC can lead to an improvement in soil tilth making it easier to work the ground.

In addition to serving as a soil amendment (pH and soil tilth), PCC has been proven effective in suppressing Aphanomyces root rot in sugarbeets, resulting in increases in stand counts, tons harvested, and recoverable sugar. Studies conducted by Michigan Sugar over a three-year period showed a significant increase from all PCC rates applied compared to the untreated plots in net dollars per acre, sugar per acre, and tons

Photos by Clarke Alder
per acre. Other studies demonstrated the long-lasting effect of a single application of PCC where Aphanomyces suppression was achieved for 10 plus years.

Current Use

Amalgamated Sugar Members have used PCC in La Grande, Oregon and Magic Valley, Idaho for disease suppression with positive results. However, one concern that has been brought up by Members is the potential for increasing pH in already high pH soils.

David Tarkalson, soil scientist and systems agronomist with USDA-ARS in the Kimberly, ID research facility, is conducting a six-year study (currently in its second year of research) to assess the effects of PCC applications on a sugarbeet, barley, dry bean rotation in southern Idaho. The PCC was obtained from the Amalgamated Sugar Twin Falls facility. One of the first questions about the product, was “what is in it”? The analysis in the table at right is of the PCC from the Twin Falls facility and is typical of the material located at other Amalgamated Sugar facilities with the exception of Nampa. (The pile at Nampa is a blended pile of both flume dirt and PCC). Limited data indicates that there are no adverse impacts from the application of PCC on either sucrose content or sugarbeet root yield. In addition, data from the USDA-ARS study indicates that there is minimal impact on soil pH from PCC application (notice the pH of the PCC analyzed in the table).

Benefits of PCC

In addition to disease suppression, PCC has the potential for increasing the water holding capacity of the soil, enhancing nitrogen fixation, and improving general soil structure and health. However, the biggest potential and benefit of PCC are the fertilizer value of the product. Looking again at the analysis from the USDA-ARS study in the table above, the PCC contained 37 lbs. of phosphorus (in the form of P₂O₅).
and 2.1 lbs. of potassium (in the form of K₂O). Using the average fertilizer costs from the National Agricultural Statistics Service (NASS 2010-2014), the PCC has an estimated fertilizer value of $8.48 per ton of PCC ($37.37 P₂O₅ and $1.11 K₂O). In addition, PCC also contains other secondary and micronutrients, such as zinc, manganese, calcium, and boron, but for this analysis, only the value of the P₂O₅ and the K₂O were considered.

When looking at the quality of PCC, the two factors of concern are the Calcium Carbonate Equivalency (CCE) and the particle size. CCE and particle size are used to calculate the effective neutralizing power (ENP) defining the activity of any liming product. In other words, the finer the material, the more active it is at neutralizing soil pH. PCC from sugarbeet factories is very fine and incorporates into the soil more readily than most ground limestone products. This makes PCC a relatively inexpensive fertilizer when looking at nutrients and should be one of the first soil amendments to be considered in a crop production system. Amalgamated Sugar’s PCC is registered as a soil amendment in Idaho, California, Montana, Washington, and Oregon. There is a significant demand for the product in California, but transportation costs are the limiting factor in moving product.

PCC can be acquired at the Magic Valley facilities and at Nyssa, Oregon. The table below shows estimated inventories at all of the Amalgamated Sugar facilities.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Generation* (tons/year)</th>
<th>Existing Stockpile (tons)</th>
<th>Offsite Shipments (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini Cassia</td>
<td>286,000</td>
<td>2,400,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Nampa</td>
<td>170,000</td>
<td>N/A</td>
<td>minimal</td>
</tr>
<tr>
<td>Nyssa</td>
<td>0</td>
<td>700,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Twin Falls</td>
<td>94,000</td>
<td>2,000,000</td>
<td>36,000</td>
</tr>
</tbody>
</table>

*Based on 5-year average

When looking at the quality of PCC, the two factors of concern are the Calcium Carbonate Equivalency (CCE) and the particle size. CCE and particle size are used to calculate the effective neutralizing power (ENP) defining the activity of any liming product. In other words, the finer the material, the more active it is at neutralizing soil pH. PCC from sugarbeet factories is very fine and incorporates into the soil more readily than most ground limestone products. This makes PCC a relatively inexpensive fertilizer when looking at nutrients and should be one of the first soil amendments to be considered in a crop production system. Amalgamated Sugar’s PCC is registered as a soil amendment in Idaho, California, Montana, Washington, and Oregon. There is a significant demand for the product in California, but transportation costs are the limiting factor in moving product.

PCC can be acquired at the Magic Valley facilities and at Nyssa, Oregon. The table below shows estimated inventories at all of the Amalgamated Sugar facilities.

All locations have procedures in place to load PCC five days a week during normal operating hours. Additionally, it is possible to arrange for the customer to have their own loader on site to facilitate loading operations. Backhauls during beet campaign to the piling grounds could also be used to help with the haul costs, although the regular trucks have difficulty offloading the PCC. Live bottom beds will be needed to be able to unload the product in a timely fashion.

For further information about the benefits of PCC or to inquire about pickup please contact your local Crop Consultant.

Phyllis Beard, Manager, Feed Products (Retired)

Edited by Dean DeLorey and Oliver Neher
B Ringing beets to the factory is the first step in the sugar refining process and though it may seem rather obvious and simple, it requires a great deal of focus on logistics. Beets are trucked to the factory from various receiving stations and unloaded onto belts to be brought into the factory to be processed. A consistent supply of trucks is necessary to maintain the plant’s slice rate. The Mini-Cassia factory can process a truck every 2 to 2-1/2 minutes, or about 22 acres per hour. Communication is key in adjusting the flow of trucks to match the needs of the factory.

Another important point of consideration is that of beet quality. During certain times of the year, piles with degraded beets need to be blended into the factory with good quality beets to minimize any negative impacts on the process performance.

Once the beets reach the factory they will go through the beet handling system. The purpose of this system is to transport and clean the beets, as well as remove any foreign material prior to processing. Beets are first washed to remove as much dirt as possible, which helps to reduce wear on equipment farther down the process. This is accomplished with a large horizontal drum shaped piece of equipment called a beet washer. The beets are flumed, meaning transported by water, into the drum which is constantly rotating. Internal steel flights, or lifters, move the beets forward through the rotating drum. This tumbling effect creates a more thorough and efficient washing with beet-on-beet contact. In addition, during cold weather conditions, the beet washer will break up any frozen balls of beets and large ice chunks.

Next, the beets are flumed through multiple rock catchers, which are machines that separate rocks and other heavy foreign objects from the beets based on differences in weight. This machine is a rotating drum, yet much shorter than the beet washer, and there are multiple slots in the front end of the drum for catching incoming rocks. As the water carries the beets through the drum, rocks sink to the bottom and are pushed back to the front of the drum by channels where they are then lifted and dropped down a chute into a discard pile. These rock catchers will remove rocks from the size of a large ice cooler to that of a penny.

The beets are then flumed through a weed catcher, which uses metal bars to comb through the beets to remove extra vegetation (weeds and beet tops). The beets are then transported by belts to the beet hoppers to stage for slicing at the cutter deck. At this station, the beets are sliced into long, thin v-shaped strips called cossettes. The cossettes are generated by sending the beets through a drum slicer machine at the bottom of the beet hoppers. This machine consists of a drum that rotates horizontally and carries knife blocks that are held in place by support arms. The beets are gravity fed from the hopper into the center of the drum where they are sliced in a continuous, rotating manner, much like a mandoline slicer. Proper operational management of this station is very critical to the performance of the entire downstream processes. The knives need to be well sharpened and properly aligned to

Editor’s note: This article is the first in a 3-part series to be published in each harvest issue of The Sugarbeet. The series begins as fresh beets are delivered from the field to the factory and follows them through the factory to the store shelves.
produce good quality cossettes. Dull and/or poorly aligned knives will create poor quality cossettes that generally consist of either many small pieces or large slabs, too much of either will hurt process performances downstream in the mixer and diffusion tower operations.

The knives are V-corrugated and categorized by two different types of patterns, "A" and "B". These categories correlate to how the ends of the knife are configured in each row of a knife block. They are strategically arranged in alternating rows of A-type and B-type. When properly aligned, the generated cossettes form their thin v-shaped profile. This shape gives greater contact surface area for the water to initiate the diffusion process. As knives wear, the cossette quality will suffer resulting in subpar factory performance. To maintain high quality production, knives are changed approximately every 24 hours. Some conditions require more frequent changes, especially if cossette quality begins to deteriorate. After slicing, the cossettes fall onto a belt where they are weighed and taken to the mixer to initiate the diffusion process. In the sugar industry, diffusion is the process in which sugar is extracted out of the beet and dissolved into water, which creates a solution known as "raw juice”. This occurs because of a difference in sugar concentration between the cossettes and the water. The system works to achieve an equilibrium, and the sugar molecules flow out of the cossettes and into the water until the concentrations are equal (i.e., a leaching process). Temperature affects the rate at which diffusion occurs, where higher temperatures equate to faster diffusion rates, too high of temperature will degrade the pressing of the pulp in a downstream process.

The diffusion process is carried out in a system comprised of a cossette mixer and diffusion tower. The primary purpose of the cossette mixer is to heat the incoming cossettes before they enter the diffusion tower. The cossettes are conveyed into the top of the mixer and an agitator mixes the cossettes with heated juice prior to being pumped into the bottom of the tower. The diffusion tower has a rotating central shaft with lifting flights to help convey the cossettes up through the tower. The speed
at which the tower rotates is controlled to achieve an optimal retention time to maximize diffusion.

Fresh water is injected into the top of the tower just below the cossette outlet. This type of movement is known as countercurrent flow, which creates an environment for more effective diffusion. Juice is screened at the bottom of the tower and is recirculated back to the mixer. Raw juice is screened off the mixer at the cossette inlet end and is then pumped downstream to the purification process.

The spent pulp, also known as "wet pulp," exits the top of the diffusion tower through two scrolls. The wet pulp is sent to the pulp presses where water, called "press water," is removed and recycled back to the top of the diffusion tower, and injected just below the fresh water inlet. Since the press water contains sugar this recycling step increases the plant's sugar recovery, or extraction. After being pressed, the pulp is then dried and either stored as bulk shreds or pelletized, both of which are used as an animal feed product.

Once the pulp exits the presses, there are no other opportunities for sugar recovery. As can be expected, a factory's total sugar production is directly impacted by the performance of the diffusion process. Any sugar that was not extracted from the cossettes or removed as press water will remain in the pulp and in the end, leave the factory as livestock feed. Hence, it is vital to have a top-notch operation through the processes described in this article.

Brett McKinnon, Process Engineer, Mini-Cassia

The two halves of the field above were planted with the same variety on the same day. The field was treated identically except for the use of the Little Diker™ at planting on the south half, resulting in an additional 4 tons per acre at the end of the year.

Contact us for a quote
Jim 208.339.1855
Aaron 208.251.4630
littlediker@gmail.com

The Little Diker provides protection for emerging crops & substantially reduces erosion in sugar beets, corn, onions, and beans. Our versatility has been demonstrated on planters, cultivators, toolbars, and grain drills.

Built in Boise, Idaho by American Craftsman, the Little Diker™ will not only help prevent wind & water erosion, but will also provide a substantial return on your investment for years to come!

2016 side-by-side trial

The Little Diker provides protection for emerging crops & substantially reduces erosion in sugar beets, corn, onions, and beans. Our versatility has been demonstrated on planters, cultivators, toolbars, and grain drills.

Contact us for a quote
Jim 208.339.1855
Aaron 208.251.4630
littlediker@gmail.com

www.littlediker.com
Too much nitrogen: test shows it cuts sugar, and grower return

By DR. GEORGE RUSH

GROWERS have long known that efficient fertilizer use and profitable sugar beet production go hand in hand. Only recently, however, has nitrogen been recognized for its overriding impact on production and, hence, its great influence on the grower’s net return.

Research findings show that nitrogen is unique among the fertilizer constituents required for beets, in that it has a critical effect in three important areas: yield, sugar content and processing quality. Too little nitrogen will reduce yields. Too much nitrogen can depress yields, and bring drastic reductions in both sugar content and processing quality.

For these reasons, it is important for growers to pay close attention to nitrogen fertilizer requirements, and to avoid using more than necessary.

In the Nyssa-Nampa district, there is added incentive to strive for optimum nitrogen usage. With the introduction of individual sugar tests this year, individual efforts to achieve proper management of nitrogen fertilizer practices will be individually rewarded. Those practices who continue to apply excessive amounts of nitrogen fertilizers will receive sharply reduced payment schedules, reflecting the lower quality of their beets. Growers who achieve near optimum levels of nitrogen fertility will benefit accordingly, in the form of higher beet payments and reduced fertilizer and production costs.

Good Practice Basic

In all areas, the greatest return to the grower results from the highest production of sugar per acre. This can be achieved only when maximum root yields are accompanied by the highest possible sugar contents. In practice, of course, this is usually difficult to achieve year after year. It occurs most frequently when there is timely application of the best cultural practices, and excessive levels of nitrogen fertility are absent.

The validity of these observations is supported by an intensive study conducted in all Amalgamated growing areas in 1965, results of which are published here for the first time. In this study, five separately-planted fields of high nitrogen fertility, and five of low fertility, were selected in each factory district. With some final adjustments, test data was obtained from 56 different farms.

Sampling Was Steady

Each field was selected on the basis of previous cropping and fertilizer history, as well as the grower’s indication as to intended total rate of nitrogen planned for the forthcoming crop. Petiole samples were taken at two-week intervals throughout the growing season, and just prior to harvest, in order to assess the nitrogen fertility status of the soil in each location. Roots were taken at harvest time for chemical analysis and processing studies. Yield data was obtained from company contract records, which showed the total net tons of beets delivered from the selected farms.

The information relating to production and quality of the beets, and the net returns to growers, is summarized in the accompanying table. These results, from strictly commercial fields, confirm research findings. They illustrate clearly why high levels of nitrogen fertility are undesirable, and how too much nitrogen can be harmful, just as too little nitrogen is undesirable.

Undoubtedly, many growers will be surprised to see that there is no appreciable difference in root yield between the high and low nitrogen fertility fields. This is because the low nitrogen fertility fields had enough nitrogen to support normal growth and development throughout the season. The additional 130 units of nitrogen applied to the high nitrogen fertility fields were not required to promote growth. They represented excess or surplus units which added unnecessarily to production costs and lowered beet quality. Clearly, and conclusively, these findings condemn excessive nitrogen.

Practical Grower Tests

Although it is difficult to determine appropriate nitrogen fertility levels accurately, it is not impossible. Several methods are available whereby growers can make reasonable estimates. One approach is the so-

### AVERAGES FOR FIVE HIGH AND FIVE LOW NITROGEN FERTILITY FIELDS IN EACH FACTORY DISTRICT IN 1965

<table>
<thead>
<tr>
<th></th>
<th>Average for 28 High N Fields</th>
<th>Average for 28 Low N Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Units N applied</td>
<td>240</td>
<td>110</td>
</tr>
<tr>
<td>2. Average ppm NO3-N in petioles throughout the season</td>
<td>10,357</td>
<td>6,468</td>
</tr>
<tr>
<td>3. ppm NO3-N in petioles at harvest</td>
<td>6,350</td>
<td>3,925</td>
</tr>
<tr>
<td>4. % sugar</td>
<td>15.6</td>
<td>16.9</td>
</tr>
<tr>
<td>5. Yield, tons per acre</td>
<td>20.4</td>
<td>20.2</td>
</tr>
<tr>
<td>6. Beet apparent purity, %</td>
<td>85.7</td>
<td>88.5</td>
</tr>
<tr>
<td>7. Thin juice purity, %</td>
<td>91.4</td>
<td>93.7</td>
</tr>
<tr>
<td>8. Extraction, %</td>
<td>81.8</td>
<td>86.4</td>
</tr>
<tr>
<td>9. Gross sugar, lbs. per acre</td>
<td>6,365</td>
<td>6,828</td>
</tr>
<tr>
<td>10. Extractable sugar, lbs. per acre</td>
<td>5,207</td>
<td>5,899</td>
</tr>
<tr>
<td>11. Grower Return per acre</td>
<td>$233</td>
<td>$263</td>
</tr>
</tbody>
</table>

This table shows the results of the study conducted in 1965, comparing high and low nitrogen fertility fields. The data includes nitrogen application rates, petiole nitrogen content, sugar content, yield, and financial return per acre.

---

Dr. Rush, whose picture appears elsewhere in this magazine, has been a White Satin man since 1950. A British Columbian to start with, Rush obtained his Ph.D. at Wisconsin in agronomy and genetics, and first specialized in hybrid corn. The male sterile beet plant at right is one of thousands that his research staff cultivates for testing and seed production each year.
Fifty-six growers helped out

called strip or lap test, in which narrow strips of several different levels of nitrogen are applied in each field. One rate of application usually is less than half the normal practice and other strips are based on fractional increments of this much-reduced amount. The response of beets to such broad levels of nitrogen fertility can be observed visually during the season. Greater accuracy can be obtained at harvest, by taking and comparing the weight of beets from each of the several strips.

Combination Is Best

Another approach employs petiole tests (tissue tests) to determine the nitrogen fertility status of a beet field, and is applicable at any time during the growing season. In this test, the critical level for nitrogen is recognized to be in the range of 1,000 to 2,000 ppm N03-Nitrogen in the petioles. If the level of NO3-Nitrogen is above this range, the crop is adequately supplied at the time of sampling. If the level drops below 1,000 ppm, particularly during the summer months, root yields will be reduced. A combination of strip tests and petiole sampling will, of course, permit a more accurate assessment of nitrogen fertility levels than either method alone.

Research results are often considered most valuable when obtained under precise laboratory conditions, where every element in a chain of events is planned and controlled from start to finish. These new test results fail to meet this standard in one important respect, because the selected fields were planted and cultivated in normal fashion, with no outside supervision or suggestion other than that which the grower might normally seek. These were, simply enough, 56 different acreages planted by 56 different beet growers, whose practices and preferences might vary as much as their individual personalities.

Conditions Were Normal

In this case, of course, complete dependence on normal practice was advantageous. It assured that the results represented actual conditions and the numerous different soil and climate combinations, and nitrogen fertilizer applications, that typify the grower and his environment. The test’s findings appear all the more authoritative, and useful, for this particular reason.

The importance of nitrogen in the production of sugar beets justifies every effort to achieve maximum returns from its use. Hopefully, these newly published findings will encourage growers to undertake tests of their own, aimed at finding the proper balance of nitrogen in their soil and preventing the damage that excessive use clearly causes.

Here’s how a tare sample is taken, as the beets tumble through the piler, at a Nyssa-Nampa district receiving station. Bagged and shipped to the company’s new tare laboratory, the sample will shortly reveal sugar content. If the grower used too much nitrogen, results may be disappointing.

Editor’s Note: The flashback article is intended for entertainment purposes. The content and original formatting of the articles to include pictures remains unaltered from their original state as often as possible. As high quality scans are sometimes difficult for maintaining “readable quality”, often the formatting is mimicked as closely as possible to preserve originality. The written word is never changed.

CLARK MILLARD

Beloved Friend and Mentor
11/21/1950 - 5/27/2018

Clark was born in 1950 in the tiny town of Downey Idaho. He grew up in Swan Lake, working on his family’s dry farm/cow/calf farm but attended grade school in Downey. In 1969, Clark graduated high school from Marsh Valley High School. He went on to attended Ricks College for two years before transferring to Utah State University where he graduated with a Bachelor’s of Science degree in Soil Science in 1974.

Clark’s first association with Amalgamated Sugar was in the fall of 1972 when he was approached by Zan Litz, fieldman for the Lewiston District at the time, to work at the ‘beet dump’ in Dayton, Idaho. His first job was moving rail cars under the piler boom using a hand jack. Clark worked again for Amalgamated Sugar in 1973, this time in the rare shack where they took tare by hand, brushing and weighing beets. Upon graduation from USU, Clark worked for the State of Idaho as a soil scientist but continued to work with his father on the family farm. In 1976, after his second attempt at interviewing with Amalgamated Sugar, he took a job as a fieldman in Rupert and began his more than 48 year career with Amalgamated Sugar.

Clark was an excellent fieldman, an analytical thinker, and made good relationships with the growers he served. His relationships to the growers were important to him. During his tenure with Amalgamated Sugar, Clark contributed regularly to The Sugarbeet and other publications as part of his dedication to education and outreach. In 1999, Clark accepted a job offer and transferred to the Nampa Factory office to work as the Nampa District Agricultural Manager. He later also took over the Nyssa District after the closure of the Nyssa Factory in 2005. He would stay in that position until his retirement in May 2016.

Amalgamated Sugar was a large and important part of his life and he was a very dedicated employee. His children have many fond memories of going to work with dad and spending time with the good people there.

Clark was very involved outside of the workplace as well. From 1980-1995, he served in the Mini-Cassia Search and Rescue, ending his service as a commander. He also taught hunter safety courses for many years.

Clark had many joys in his life including a passion for collecting, restoring, and shooting firearms. Later in life, he studied and collected Civil War and Native American artifacts. He also loved to travel and take photographs.

Clark was an avid learner and loved to read. He enjoyed learning about a variety of topics. He was gifted in math and science. He also enjoyed a variety of music. Most of all though, he loved to spend time with his family and was never happier than when he had family together in his home. Clark was very supportive as a father and grandfather and made it a point to attend important events in the lives of his children and grandchildren.

Clark was a life-long member of the Church of Jesus Christ of Latter Day Saints and enjoyed his service in the church.

Clark will be loved and remembered not only by his wife of 31 years, Peggy, his sister Marla Blomham, his children Melissa Bell (Jared), Wesley (Jennifer), Kyle (Elizabeth), Jeffrey, and his nine grandchildren, but by everyone whose lives he touched during his lifetime of service.

Melissa Bell, Daughter

The Sugarbeet
Amalgamated Sugar

2017 Retirees

Thank you for your dedicated service to the Amalgamated Sugar Company LLC. Our high quality employees are what propels us and allows us to maintain a competitive presence now and into the future. We wish you all the best of luck.

Ronald J Turner
Mini Cassia
Vicki Larsen
Nampa

Susan K Vibbert
Mini Cassia
Heriberto Rodriguez
Nampa

Jill A Walters
Mini Cassia
Mark A Rosar
Nampa

Kent R Warr
Mini Cassia
Bill J Stewart
Nampa

Rosemary Wright
Mini Cassia
John E Harder
Nyssa

Earl Wyssong Jr
Mini Cassia
George R Heiser
Nyssa

Craig Zimmerman
Mini Cassia
Gregory D Perdue
Nyssa

Jonnie R Breshears
Mini Cassia
Phyllis Bead
Twin Falls

Don N Peterson
Mini Cassia
Robert L Erdmann
Twin Falls

Frank D Coombs
Nampa
James E Henley
Twin Falls

Steven J Cox
Nampa
Steven R McMullin
Twin Falls

James R Davenport
Nampa
Ronald Mittelstadt
Twin Falls

Gary G Eskew
Nampa
Vicente Ordaz
Twin Falls

Tim L Gregory
Nampa
Melvin B Pyne
Twin Falls

Tom K Hawks
Nampa
Russel K Wallace
Twin Falls

Cynthia D Kessel-Madrid
Nampa

With a sole focus of bringing you the best genetics, you can count on unbeatable disease packages. Call your dealer today to learn more.