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ON THE COVER

Front cover photo of a Branson, 20 Series, 4020R tractor with a BS25R front end loader. Photo courtesy of Branson Tractors, Inc.

Have an article or photo submission? Give us a call at 1-800-330-3482 or e-mail: info@ritzfamilypublishing.com for image and file requirements. (All submissions subject to approval)

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Western Farm, Ranch & Dairy Magazine

a Ritz Family Publication

President / CEO

Michael Ritz
mikeritz@ritzfamilypublishing.com

Executive V.P. Operations

Robert Davis
rdavis@ritzfamilypublishing.com

General Sales Manager

Pat Drury
pat@ritzfamilypublishing.com

Asst. Sales Manager

David Larsen
david@ritzfamilypublishing.com

Office Manager

Angie Hawkins
angie@ritzfamilypublishing.com

Secretary

Leslie Brunton
leslie@ritzfamilypublishing.com

Ritz Family Publishing, Inc.

www.ritzfamilypublishing.com

Corporate Office

Ritz Family Publishing, Inc.
714 N Main Street
Meridian, ID 83642

Sales

For all sales inquiries, call toll free
1(800) 330-3482 or 1(208) 955-0124
sales@ritzfamilypublishing.com

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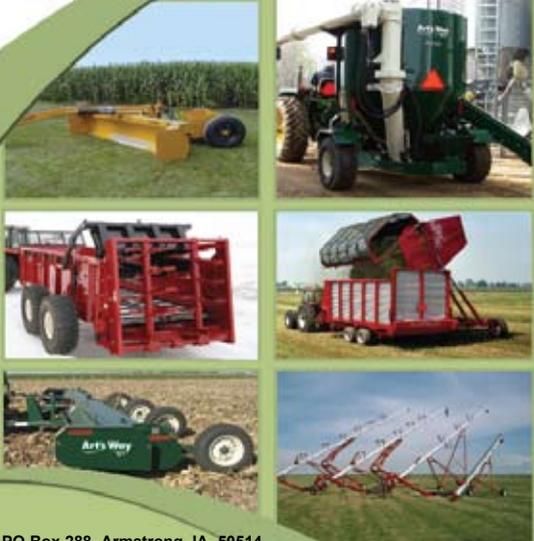
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Bounty Annual Ryegrass

Cover crops are used to accomplish a variety of soil improvement issues. Erosion control, increasing organic matter, nitrogen fixation, increasing water infiltration, better soil structure and improving the soil micro flora, all of which aid in increasing yields thru healthier soils. Deep rooting cover crops create channels for corn and bean roots to follow, allowing water to penetrate deep into the soil profile.

Bounty Annual Ryegrass is rapidly becoming the cover-crop of choice for producers throughout the Midwest. Annual

ryegrass is easily established and can be seeded by either: aerial seeding in standing crops (preferred method), drilling, broadcasting and lightly incorporated. Bounty Annual Ryegrass will provide increased: organic matter, soil structure, water infiltration, erosion control, soybean cysts control, and significantly higher crop yields during stress years.

Bounty Annual Ryegrass not only provides excellent rooting depth that breaks through soil compaction layers to reach deep water and nutrients bringing these nutrients to the root zone of the crop, it

also has given continuous corn growers a credit of 80 lbs. per acre of nitrogen. Bounty Annual Ryegrass also leaves improved soil organic matter which improves water storage and water infiltration. Each time the soil organic matter is improved one percentage point; one acre will store 10,000 more gallons of water. Annual Ryegrass cover crops have increased water infiltration rate by 400% in three years. This along with the increase storage by the organic matter relates to increased crop yields especially during periods of drought. 🐾

Dyna Flo, Inc. announces the Dyna Flo Pump

General Irrigation is licensed in sales, design and installation of deep well and submersible pumps with 40+ years' hands-on experience. We have been selling and installing electric pumps, diesel-driven pumps and PTO pumps for irrigation, and industrial applications. WE have extensive knowledge in handling water and a subsurface and surface dewatering division.

Throughout the years, we have had many calls from farmers and contractors desiring a flood pump that would pump 3,000 gallons per minute without exhausting their budget. Four years ago, General Irrigation created the Dyna-Flo Pump.

We decided to keep it simple using proven technology. The water lube bearings and bearing pedestals are similar to

what a deep well turbine is built with. The packing box and gland are similar to what a centrifugal pump would use.



We incorporated an adjustable swivel on the hitch to more easily adapt to

ditches, canals, and sump holes. Sand collars are used to deflect silt and sand away from the water lube bearings retainers.

Maine-style wheel bearings with spring-loaded grease cups will resist water contamination, and has only one grease able high thrust ball bearing on the drive line behind the PTO shaft.

The Dyna Flo pump operates at 1,000 RPM and will produce 3,000 GPM at approx. 15 feet of lift. The 12"x 50" hoses are fitted with ring lock ends.

The pump can be used for flood control, emptying sloughs, flooding rice ponds and cranberry ponds as well as for water transfer.

For more information about this pump, visit www.dynaflopump.com 🐾

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Pressurized Exhaust Kills Burrowing Rodents

The H & M Gopher Control PERC® system (Pressurized Exhaust Rodent Controller) uses carbon monoxide from pressurized engine exhaust to kill burrowing rodents such as gophers, ground squirrels, prairie dogs, moles & voles.

According to the company, exhaust gas has long been one of the most lethal and least expensive methods to kill burrowing rodents. But until now

there hasn't been an economical, efficient delivery system.

Company owners, Allen Hurlburt and Virginia Massey, said that the PERC® system involves a narrow steel wand that is used to probe the burrow and inject pressurized exhaust that fills the burrow in two minutes with lethal concentrations of carbon monoxide before the rodent has a chance to either escape or block the burrow.

An internal combustion engine generates the carbon monoxide and drives a compressor pump that pressurizes the exhaust gas to 110 psi in a storage tank. An air hose and a hand held probe inject the gas directly into the burrow without any digging.

Brand new to the PERC® lineup is the PERC® 620, a trailer-mounted unit with a 20 hp Kohler motor and six reels - each with a 50' hose and hand

Fertilize-Big Yields AND Low Cost

SEA MINERALS FA works as a soil fertility supplement that re-mineralizes the soil. It comes from processing very clean sea water and contains 85 or more min-

erals and trace minerals in the same proportions that those same minerals occur in the blood of healthy animals. All of our soils are terribly deficient in these minerals.

In addition to the positive impact sea minerals have on the plants and land, it is a much less expensive alternative to commercial fertilizer. The farmer can fertilize an acre for \$6 per application with a suggestion of 3 applications per year for \$18/acre/year. It is applied as a foliar spray on green plants. Not only is it a cheaper method, but Sea Minerals FA has a lasting positive effect on the microbes in the soil. With using commercial fertilizer, microbes are destroyed in the soil. Sea mineral nutrients stay in the soil from year to year and build and enhance the soil. SEA MINERALS FA can be used without any other fertilizer with good results. It can also be mixed with other ingredients, such as weed killers or fertilizer in the sprayer.

Sea Minerals FA also makes great free-choice mineral for cattle. Cows will consume one pound per month on average. They will not require any other mineral or salt for a savings of over 50%. It has been shown to decrease cell count in dairy cattle. It plays a key role in producing better quality milk and butcher beef. The cows and calves stay healthier

Check the website www.SeaMineralsFA.com for 2010 field trial results or call Rocky Springs Ranch 800-967-0452 for your nearest distributor. 🐾

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probe. The 620 features a tandem axle with turf tires. It sells for \$14995 plus S&H.

The PERC® 412 is a trailer-mounted unit with a 14 hp Kohler motor and four reels each with a 50' hose and the hand probe. The 412 features turf tires and is designed to be pulled behind an ATV. It sells for \$8295 plus S&H.

The PERC® 206 is a skid-mounted unit with a 7 hp engine, two reels with 50' hoses and hand probes. It sells for \$4995 plus S&H.



The PERC® 206T is the skid unit mounted on its own special trailer. It sells for \$5590 plus S&H.

The PERC® system is simple to use and safe for the operator as well as wildlife since there is no poison bait or explosion involved. Crop stands are not damaged during treatment. No other control method is as effective, efficient and as inexpensive to operate as the PERC®.

A PERC® system can treat moderately infested alfalfa fields at about 3.5 acres an hour with a single operator. Each probed location requires only about 2 to 3 minutes injection time.

Units have been shipped to customers from Southern California to central Canada and as far east as Florida. Though most of the market has been with alfalfa growers, orchard and specialty crop growers have also purchased units. The PERC® system is the best solution anywhere burrowing rodents are a problem.

For more information call (530) 667-5181 or visit the website www.handmgophercontrol.com

www.farmranchdairy.com



Fertilize for \$8 per acre? Really? Yes, with Sea Minerals FA

I am sending you some pictures of our 3rd cutting alfalfa on a first year field (see the pictures and the complete story at www.SeaMineralsFA.com). It is crotch high on my son who is 6ft. This has been sprayed with Sea Minerals FA 3 times, one time each cutting. We have had little to no natural moisture here since October of 2010. We are very pleased with the results and plan on continuing using it as we are seeing improvement in production with each cutting. July 30, 201-

— W. Dilts, Belen, NM

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- Can be mixed with other ingredients (weed killers, other fertilizers)
- Great free-choice mineral for cattle (average consumption 1# per month)

Check the website www.SeaMineralsFA.com or call 800-967-0452 to request a brochure or find your nearest distributor.

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Elston Manufacturing

From Sanders to Gopher Getters

In 1925, Rue R. Elston, the founder of the Elston Company and his wife, Clara, and son, Wendell, moved to Sioux Falls, SD from Spencer, Iowa. Rue found employment with the Manchester Biscuit Company. The next year his son Jack was born. In 1927 Rue, wife Clara, and two sons, Wendell and Jack moved to Minneapolis, MN where Rue found work as a bus driver for Twin City Motor Bus.

One snowy night, Rue saw a young man get hit by a car while spreading sand with a shovel at a bus stop. The man lost his leg in the accident. After seeing this accident, Rue thought a unit could be manufactured to mount in front of the drive wheels of a bus and be electrically controlled by the driver. Such a unit could help eliminate this type of accident by spreading sand in front of the drive wheels of the bus. After extensive testing and engineering, the first units were installed on Greyhound buses.

In 1938 a corporation was formed to manufacture the Elston Electric Sander. Today sanders are used on city buses such as those in Seattle, Washington and are mandatory on school buses in many Northern States. They are also used on fire trucks and a special design for railroad trains.

In 1952 Rue, and his son Jack, engineered and designed the El-

ston Cargo Space heater, a unit that controls the inside temperature of semi-trailers that transport products that cannot be frozen. Through the years several models have been designed. These units are sold in the United States, Canada, and parts of Europe.

In 1960, they were approached by the Fish and Wildlife Service to manufacture a machine to control pocket gophers.

It was during this time that Rues other son, Wendell, became involved in the company. They designed a machine, The Elston Gopher Getter that forms a tunnel 7 to 12 inches underneath the ground. These runways are spaced twenty feet apart, which a pocket gopher



intercepts. The machine is used by farmers in their fields, on golf courses and by many airports west of Chicago to eliminate lights going out on the runways caused by gophers eating the insulation off of the electrical wires.

Since 1960 they have designed a hand held manual Gopher Getter Jr. for individuals to use in their yards and gardens. They also process bait used in these machines. This was the first Gopher Getter machine made and sold in the United States.

In 1986 their business in Minneapolis plant had increased to where it became necessary to either enlarge the building or build another plant elsewhere. After looking over all the red tape and state regulations of Minnesota and Wisconsin they found it to be to their advantage to build in Sioux Falls, South Dakota.



In 1986 they built a building in Sioux Falls, and manufactured and assembled Elston Sanders, Gopher Getters and Gopher Bait. In 1989 they constructed an addition to Sioux Falls to the Sioux Falls building and moved their cargo heater line to Sioux Falls.

In 1997 the reins of the company were passed to the new management who brought with them expertise in the trucking industry. Today they employ approximately 16 to 25 employees in Sioux Falls. The corporate office is located in South St. Paul, MN. They are actively working on Research and Development on all three of their product lines: Traction Sanders, Cargo Heaters and Gopher Getters. They eagerly anticipate new and improved products in all three areas.

For more information, please visit their website at www.elstonmfg.com

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The TEXAS PLANT & SOIL LAB Story

A Little History - 1938 saw Dr. George Schulz establish the first soil lab in Texas, Texas Soil Laboratory, Inc. in the heart of the lower Rio Grande Valley, McAllen. Schulz had emigrated from Germany with a Ph.D. in chemistry in 1933 and was working with citrus in Florida when he was urged to come to Texas to serve the citrus growers there.

He soon began working with the many other commercial crops grown in The Valley. Because there were few soil labs back then, either university (Texas A&M didn't have soil testing until 1946) or private, his work rapidly expanded well beyond The Valley to Cornbelt crops, rice, cotton, grapes, almonds, pistachios, avocados, other tree crops, pineapples, grasses and exotics.

In 1956, E.K. Chandler, CPAg, SSc began working with Schulz on soil fertility as it relates to actual plant performance in the field. Chandler then began collaborating with Dr. Albin Lengyel of Phoenix, Arizona in 1964 on Lengyel's pioneering work in petiole (leaf stem) sap testing. Petiole analysis reveals the nutrient levels in the plant at the moment the sample is taken. Chandler was the pioneer in the South in this research.

It is important because it allows fertilization adjustments to accommodate the plant's

ever-changing nutritional needs seven to 21 days before it would otherwise show visual signs of deficiencies (or excess). If correct nutritional balance can be achieved as the needs change, the plant can achieve maximum performance and resist many disease and insect pressures, while eliminating the use of unneeded fertilizers and reducing (often dramatically!) water requirements. At some point, Chandler coined the phrase, "asking the plant" when describing his approach to soil fertility and plant nutrition, together with petiole and leaf testing.

During this time, Lengyel and Chandler were investigating soil testing methods that accurately reflected the nutrient levels found in the plant. Nearly all methods in use at that time (and still today) showed high values of some nutrients, even as the plant showed signs of deficiency in those nutrients. The conventional methods (even today) additionally measure nutrient compounds that are not available to the plant.

This explains why these methods have to have approximate compensating calculations for every soil type variation and consequently, why soil laboratories tend to be regional. Dramatic errors in interpretation and recommendations can be made by a laboratory that is unfamiliar with the par-

ticular soil variation it has tested.

Lengyel had been researching the "Carbon Dioxide (CO₂) Extraction Method" as the soil test that accurately reflected the nutrient levels measured in the plant. Readily-available nutrients to the plant are water soluble. Slowly-available nutrients are those compounds that are soluble in carbonic acid. Plant roots exude CO₂ which combines with soil moisture to form a very weak carbonic acid. It is this reaction that allows the plant to survive when there are few water soluble nutrients available. If nutrients are not soluble in either medium, they are not available to the plant.

The CO₂ Method is one of the earliest extraction methods and much research on it had been done by several universities. Together with Lengyel, Chandler vigorously began running experiments to calibrate soil test analyses against petiole test analyses. The result was a proprietary set of standards that accurately calibrate soil nutrition measurements to actual plant uptake.

This explains how the lab is able to consult on a World-wide basis and allows fertilization recommendations to be made which results in greater nutrient uptake efficiency, requiring less fertilizer, less water and healthier, more productive plants.



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Photograph by
Scott D. Hastings

These measurements are then compared with published university plant nutritional standards for the variety and stage of growth to generate interpretations and recommendations. For most growers, lab numbers alone mean nothing. The most important components of any soil test report are the interpretations and the recommendations.

Because the CO₂ Extraction Method duplicates the way plant roots take up nutrients by measuring only the water soluble and carbonic acid soluble compounds, the Method is accurate for every soil type. It is used to measure the levels of Phosphorous (as P₂O₅), Potassium (as K₂O), Calcium, Sodium and Magnesium. The other nutritional compounds are assayed using standard conventional methods.

In 1981, Chandler and Lengyel purchased Texas Soil Laboratory, Inc. and changed the name to Texas Plant & Soil Lab, Inc. Lengyel, in particular, had a keen interest in sugars as applied to plants. In 1986, he was granted two patents relating to the use of foliar-applied sugars to reduce freeze damage and to reduce damage to plants in acidic atmospheres. Since then, the lab has greatly expanded the research into the many other benefits of sugars applied to soil and plants.

Lengyel died in 1993 and Chandler, in 2008. In 2009, an agriculture research corporation purchased the lab and it is now

Texas Plant & Soil Lab (TPSL®).

Today – Over the years, TPSL® with its field-proven performance, has grown into a World-respected institution. Being results driven, the lab continues its research in soil fertility and plant nutrition. With the closure of the USDA – ARS center in Weslaco, Texas, the lab was able to acquire the services of a senior research scientist, Dr. Larry Zibilske as Vice President of Research.

Along with a long list of credentials and experience, Zibilske is a practical, out-in-the-field researcher with considerable experience in many crops. Accordingly, the lab's research has greatly accelerated in the roles of biology, Carbon-based compounds, micronutrients and trace elements as relate to soil nutrition and plant health.

Even though often ignored, micronutrients have long been known to play essential parts in plant health, nutrition and resistance to insect and disease pressures; this research continues. However, more recently, much university research is being done on the roles and sometimes previously unknown benefits of trace elements in plants. Accordingly, as the research develops, TPSL® continues to add these elements, as appropriate, to its suite of tests for specific crops.

Water availability and quality are becoming critical issues. TPSL® is seeing more and more poor to bad water used for irri-

gation. Water high in some suspended or dissolved solids can do great long-term damage to soil chemistry and physical qualities. Bad water can also very quickly kill plants or contribute greatly to disease. Accordingly, it has become more essential than ever to provide balanced nutrition to the plants to reduce water needs and to remediate soil on an ongoing basis where good quality water is unavailable. Additionally, TPSL® consults for hydroponic and aquaculture operations.

TPSL® consults around the World on a huge variety of plants and crops – from Canada to Brazil, The Bahamas, Grenada, Puerto Rico, The Falklands, Qatar, Ireland, Romania, Russia – to name a few. As a full-service analytical and consulting agronomic laboratory, TPSL® analyzes and consults on Soil, Water, Plants, Compost, Fertilizer and Heavy Metals. It is also the only lab in Texas (and many surrounding states) that offers consulting to sustainable and organic growers.

Petiole and leaf analyses and many free resources are available through AskThePlant.com. Soil, water, compost and heavy metals tests are available at TexasPlantAndSoilLab.com.

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Vertical Tillage Coulter Kit Attachment Gets Even Stronger

Ron's Manufacturing has added two more bearings to their kits. This makes the kits even more heavy duty. Coulter kits from Ron's Manufacturing converts any chisel plow to a year-round tool to prepare your fields.



In the fall, it can be used to lightly till the soil, incorporate and size residue. It is also a practical way to dry out wet soils. The

Vertical Tillage Coulter Kit Attachment works well in no-till conservation tillage, as well as conventional tillage operation, extending the growing season and creating better planting conditions. Vertical tillage prepares the soil to warm more quickly in early spring, energizing the seedbed for maximum growth and yield potential.

The Vertical Tillage Coulter Kit Attachment is a smart investment in that it has multiple uses which will ultimately produce savings in terms of time and money. It also has a low operating cost per acre and can be used in a wider range of conditions than most tillage tools. It operates at a relatively high speed of 6 to 12 MPH which saves time. The Vertical Tillage Coulter Kit Attachment allows for quick mixing of manure and soil to prevent loss of nutrients and control odor. It can also be used for very shallow incorporation of fertilizer and select herbicides.

The Vertical Tillage Coulter Kit Attachment is spaced on 6 inches.

For more information contact Ron's Manufacturing at 40582 187th St., Carpenter, SD 57322; phone 605-266-2177; E-mail info@ronsmfg.com. (Also, please see their ad in this issue). **56**

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(Please see press release in this issue)

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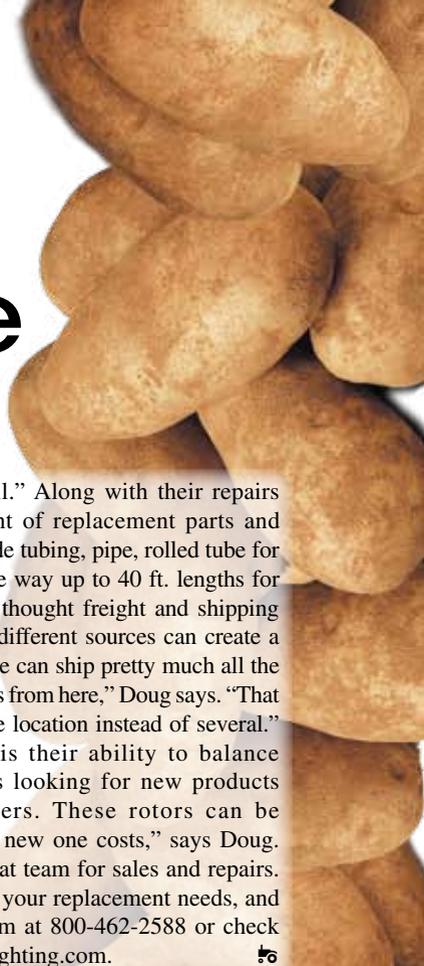
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Egbers on Super Edge



“There just isn’t enough we can say about the Super Edge Auger Flighting” says Doug Egbers, owner of Egbers Flighting

Company, Inc. The Super Edge is created in the rolling process. This is a cold rolling process so the steel is not heat treated. “This lets the steel retain its strength,” states Doug.

Because of how the flighting is made, the outside edge is thicker than your common market flighting, or “plain flighting,” as they call it. Super Edge Auger Flighting has an outside edge that is approximately 50% thicker. It gives longer wear and longer life of the auger.

And Egbers knows their augers. Their repair and fabrication division has years of experience in re-flighting and balancing auger sections. “It just makes good sense to replace the auger flighting instead of buying a new auger section.” Confirms Doug, “New auger sections can be pricey and the Super Edge

Auger Flighting is priced to sell.” Along with their repairs Egbers offers a wide assortment of replacement parts and tubing. They have your basic inside tubing, pipe, rolled tube for grain cart unloading augers all the way up to 40 ft. lengths for transport augers. “We’ve always thought freight and shipping different replacement parts from different sources can create a problem for our customers, and we can ship pretty much all the replacement parts a customer needs from here,” Doug says. “That way all your parts come from one location instead of several.”

A newer service for Egbers is their ability to balance combine rotors. “We’re always looking for new products and services for our customers. These rotors can be balanced at a fraction of what a new one costs,” says Doug.

All in all, Egbers supports a great team for sales and repairs. They’re your One-Stop-Shop for your replacement needs, and they’re farmer friendly! Call them at 800-462-2588 or check them out on the web at www.eflighting.com.

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Certified seed potato and commercial growers alike from throughout the United States know they can expect extremely high quality, clean and disease-free seed from Montana. Montana seed potato producers have the luxury of the best geographical isolation in the United States. Montana's seed potatoes are produced in mountain valleys with virtually no commercial production. Relatively cool growing conditions in the secluded mountain valleys result in reduced insect pressure and the arid environment limits the spread of diseases. The excellent quality of Montana Seed Potatoes is backed by the most rigorous testing and inspection standards in the country. All

potatoes certified as seed originate from in vitro plantlets produced by the MSU Seed Potato Certification tissue culture program. No out-of-state potatoes are allowed to be used as seed stock for seed certified in MT. During the summer growing season, all early generation potatoes are 100% tested for viruses PVX, PVY and PVY, and all Generation 2 potatoes are tested for PVA and PVY. Many growers also choose to have their generation 3 and 4 crops virus tested. After harvest, samples are collected from all Montana seed fields and make the voyage to Hawaii where they are grown out in the winter post-harvest test. Approximately 40 days after planting, all seed lots are visually inspected and leaves

are picked from each plant and shipped back to Montana for virus testing. The pairing of virus testing with visual inspections results in a very accurate crop-health status for buyers of Montana seed potatoes.

Every year, the Montana Potato Improvement Association hosts an annual Seed Potato Seminar. This year will mark the 77th gathering of Montana growers along with potato growers and industry representatives from throughout the US. The annual Montana Seed Potato Seminar will be held November 8-9, 2012 in Bozeman, Montana at the Grantree Hotel. Call the Montana Seed Potato Certification office at 406-994-3150 for more information. 🍌

North Dakota Seed Potato Crop

Willem Schrage, ND State Seed Department

After a favorable growing in season in North Dakota the seed potato growers were not disappointed in the second largest seed potato production area of the US. This year growing potatoes in dry land meant dry land for a large part of the season. After wishing for rain the rains came in October before the harvest was finished.

Seed potato certification in North Dakota is managed by the North Dakota State Seed Department. A department in its own right. North Dakota is unique in the sense that no other state has such an approach to seed potato certification. Legislation in other states either has certification delegated to the state Department of Agriculture, or a university or an industry organization. The Seed Department manages certification of all seeds. Its potato program also serves other sectors of the potato industry. The first priority is seed potato inspection in field and storage. With around 15,000 acres of seed potatoes planted the state is the second largest seed potato producer in the US. The best virus control is the post harvest test. In North Dakota the Certified Seed Potato Growers As-

sociation actually owns the land for the post harvest or winter test. The Department carries out the winter test in southern Florida on land owned by the growers and managed by Bruce Dunn of Dunn Brothers Farms. The winter test covers about 16 acres and



A North Dakota State Seed Department seed potato inspector in the field.

inspections are visual except for potential symptomless varieties and when growers request a laboratory test on leaves. The changes in strains of Potato Virus Y have caused more varieties to become potential symptomless carriers.

Shipping point inspections are also done on fresh potatoes. For destinations such as school programs processing potatoes are also inspected. The latest adaptation has been that inspectors are licensed by the USDA to carry out the USDA food safety audits on the farms, where customers request such. The USDA food safety audits are on good agricultural practices and good handling practices (GAP/GHP).

There is a pride amongst the seed potato

inspectors, because the rich black soil in North Dakota grows seed potatoes of good quality that perform well wherever they are sent. The superior production characteristics express themselves in emergence and vigor. The warm summer and early planting are expected to provide seed that will emerge quickly. The red color of the Red River Valley is well known.

In 2012: 14,446 acres of seed potatoes were certified in North Dakota. Red potatoes were still the largest acreage with varieties such as Norland selections, Red LaSoda and Sangre. Russet Burbank is still the most popular processing variety, but there are other processing varieties produced in the state such as Ranger Russet, Prospect, Bannock Russet and Umattilla. Dakota Pearl is the chipping variety most in demand and besides private varieties there is Atlantic. In the fresh russet sector it is still Russet Norkotah including selections. North Dakota produces a large number of new varieties in smaller acreages such as: the chipping varieties, Harley Blackwell, Lady Claire and Monticello or russets such as Alpine Russet and Teton Russet, but mostly fresh market varieties such as Colorado Rose and Dakota Rose and yellow flesh varieties such as Melody, Sierra Gold, Agata, Milva, Satina, Augusta, Ambra, Romanz, Bellarosa.

The North Dakota Seed Potato Directory can be found at: <http://www.ndseed.com> or a copy can be obtained by calling: 701-231-5400. 🍌

North Dakota Certified Seed Potatoes

Contact North Dakota State Seed Department for more information and a Copy of North Dakota Seed Potato Directory. www.ndseed.com (701) 231-5400 P.O. Box 5257 Fargo, ND 58105

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for the farmer in agricultural use, including for water distribution, dairy farming, miking, augers, grain dryers, conveyers, cooling towers, and also for the wine production industry to run crusher-stemmers, wine presses, bottle corks, irrigation pumps, etc. The Rotary Converter



is designed to operate as modules with the ability to be connected in parallel to produce any required output, no matter

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This is a goose-neck unit that opens for access in or out of the front. There is a total 16 gates throughout the system. On each end of the alley there are two sets of 6' gates that open between the

split goose-neck hitch and the rear axle assembly. The rancher has two sorting pens measuring 15' 6" X 15' 6" with a



height of all panels at 6'. This gives the rancher the ability to tie into the sorting system with any type of portable corral

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A-Matic, Inc. Rotary Converters do not have start capacitors or contactors or mechanical connections of any kind as most other converters do, which contributes to and is usually the most common cause of failure. All connections are soldered, which is not feasible with other designs. Even though some other manufacturers claim to use Baldor motors, they still have start capacitors and switch gear, which we have eliminated by working with Baldor for approx. 2 years to develop the way these are engineered. It pays to buy Phase-A-Matic, Inc. for long life and high reliability. There is very little to go wrong with the Rotary Converter.

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The Importance Of Grain Temperature Detection

Temperature is the key to safe grain storage. When grain goes out of condition, regardless of the cause, there is always an unusual increase in temperature. Temperature is the only truly accurate indicator of grain quality for those who manage grain.

Knowledge of the causes of deterioration and spoilage in grain is essential to the grain manager. Although more is yet to be learned, grain workers and scientific researchers have jointly given much sound information with which to work.

To point out the uses of a grain temperature system, we will discuss various applications of temperature information.

Grain is a living organism. Like other living things, it breathes (respires) and it may become sick. Excessive moisture, high temperature, and poor grain condition (damaged kernels) are generally considered the most important factors that lead to trouble in stored grain.

The use of moisture tests in receiving grain is an indication of the great importance given moisture as a criterion for storage ability. Some tend to over-emphasize moisture content to the exclusion of all other factors, but low moisture content is not enough to ensure trouble-free storage. In fact, deterioration from excessive moisture can occur in grain which is placed in storage at a uniform moisture content below that considered safe for long term storage. Temperature and atmospheric changes can cause certain areas within a mass of stored grain to rise in moisture above the critical safe moisture level.

Temperature importance is best indicated by the use of refrigeration to keep foodstuffs, and by the tendency of high temperatures to speed most chemical reactions.

Grain condition refers to the soundness of grain. It has been demonstrated that unsound grain (grain with a high percentage of damaged kernels, greater number of microorganisms, and with deteriorative chemical changes) is much more likely to heat in storage than sound grain of the same moisture content. Both grain respiration and the growth of microorganisms are thought to be affected when grain is unsound.

Now let us examine the causes of heating, and determine their relationship to grain deterioration and spoilage.

The three specific causes of heating that are of interest to you are:

1. **respiration of the grain itself (metabolism of viable grain)**
2. **microflora (microorganisms such as fungi and bacteria)**
3. **insect infestation.**

All three contribute to total respiration and heat production below 135° F. One type of heating alone can cause trouble, but one type of heating can also serve to trigger another problem which will contribute to total heat production.

Grain respiration increases as the moisture content of grain increases. This increase is gradual until a critical moisture content is passed. Respiration then increases faster than the heat of respiration can be dissipated. This will cause a marked temperature rise, but corrections are possible before damage is done; i.e. aerate, turn, or dry. This condition will occur in grain of relatively high moisture content and in cases of moisture translocation.

The increased temperatures are likely to excite the other two causes of heating. When grain respiration alone is the cause of heating, visual inspection of the trouble area, while turning, will show little evidence of cause. If moisture translocation has brought about the increased rate of respiration of the grain, aeration can be employed to correct the situation.

If the moisture content of the entire lot of grain approaches or exceeds the critical limit, and if grain drying equipment is available, drying is advisable, especially as a precaution against future problems.

The important thing to note about microorganisms is the fact that they respire and tend to increase the rate of respiration of the grain. Thus a rise in temperature can mean microorganism growth. If the temperatures of the grain mass are low, such growth can be slow and temperature rises relatively small.

Slowly rising temperatures warrant investigation of the causes. When indications appear, look closely for growth of microorganisms as you

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inspect your grain.

During the last 70 years, many factors have made accurate temperature knowledge even more important than before. For example:

1. Grain is stored longer and in larger bins, making the risk in holding it greater.
2. Damage from insect infestation is great.
3. Grain is harvested and often stored when it has high moisture content.
4. There is a greater demand for top quality grain.
5. The cost of handling and moving grain has increased. It costs from 2-1/2 to 5 cents per bushel to move grain. Accurate temperature information allows an operator to turn his grain only when it must be turned.
6. Buyers today want assurance that grain purchased is of uniform quality throughout. Unless a grain manager has temperature records, one cannot be certain of the condition of purchased grain.
7. With the use of aeration systems, temperature knowledge is essential. The grain manager must know if and when hot spots are forming before the aeration system can do a thorough and economical job.

These are the reasons why temperature information is important to a modern cost-conscious grain manager. No matter what type of grain is stored, the same basic principle holds true: **You must know the temperature of your grain to know the condition of your grain.** It is imperative that the grain manager has accurate, complete, and up-to-date temperature information for good grain management. Monitoring the temperature of grain on a regular basis gives the manager the best chance to make a correction when a temperature change is occurring. Knowing the temperature of the grain makes it possible for the fans to be run only when they are needed, saving money in utilities.

Now, there are several ways to obtain this temperature.

1. You could use the "Feel and Smell" method. All that is required here is for the grain manager to feel the side of his bin and smell inside the bin in an attempt to detect heating. Another variation of this method is while turning the grain, it is felt, smelled, and/or visually inspected on a belt or at a spout outlet to detect heating. Obviously, this method has its drawbacks.
2. The "Thermometer Method" is another way to read temperatures.

With this method, pipes are inserted into the grain mass and a thermometer lowered into them. After a time, the thermometer is raised and the temperature read for that point. This method also has several serious drawbacks. It is very time consuming. (A thermometer is not designed to furnish quick readings). It must also pass through grain temperatures which are above or below that which is to be measured. It must be read very quickly once it is withdrawn from the pipe, and often in a poorly-lit area, making fast, accurate readings nearly impossible. In addition, currents are set up inside the pipe itself which may affect the readings. Although much better than the "feel and smell" method, the thermometer method leaves much to be desired in all phases of accuracy, dependability and speed of obtaining temperatures.

3. A third concept is the temperature cable method. One type of temperature cable utilizes thermocouples to read temperatures. A thermocouple is nothing more than two dissimilar metals soldered together to make a heat sensing point. TSGC cables have thermocouples made of copper and constantan (an alloy of copper and nickel), the most sensitive combination made for grain bin temperature scanning systems.

Thermocouples are the most widely used temperature sensor for several reasons. They are rugged, low-cost, dependable, and accurate. The measurement is a point measurement with fairly quick response to temperature change. Watching the trend of the temperatures provides a clear indication of unusual temperature activity.

To repeat the paragraph we began with: *Temperature is the key to safe grain storage and quality grain. When grain goes out of condition, regardless of the cause, there is always an unusual increase in temperature. Temperature is the only truly accurate indicator of grain quality for those who manage grain.*

TSGC, Inc. is one of the largest suppliers of grain temperature monitoring equipment in the world. Headquartered in America's Heartland, their administration, fabricating, sales and service divisions are located in Spirit Lake, Iowa. They also have an extensive network of contractors representing their products and services nationwide and in over forty countries. TSGC, Inc. is dedicated to serving you. 

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ment faster than most. For those of you who aren't stellar at maintaining your machines, they even offer maintenance packages to keep your equipment in peak performance with little downtime.

A great description of Colorado Equipment is "Your Working Partner" because they care for their customers; it just happens to be their tag line as well. The experienced technicians and salespeople are your working partners for new equipment, maintenance and repairs today, tomorrow and into the future. 🛠️

PowerLift Hydraulic Doors

A new standard has been set by PowerLift Hydraulic Doors for the Hydraulic Door industry. As of July 1, 2012, PowerLift Hydraulic Doors, announced that they will provide a lifetime door structural warranty on new doors for Agriculture, Aviation, Commercial and Industrial industries. Only PowerLift, with their corporate office in Lake Benton Minnesota and local partnership locations throughout America's Heartland, will warrant their door's structure to last for the lifetime of the building. Minnesota's oldest commer-

cial hydraulic door manufacturer, PowerLift's door strength and quality has proven itself over the past twenty some years and stands alone as the only company to offer a guarantee of this magnitude. PowerLift Doors offers the only hydraulic door and framework in the industry that is totally welded together, top to bottom to form one piece and without requiring bolting field assembly. To assure proper installation and customer peace of mind, experienced company specialists add to the guarantee by installing every door. Each door is custom

designed and fabricated to exact buildings measurements and specifications insuring a great fit and providing solid weather seals in all regions of the country. With thousands of doors installed, PowerLift stands alone with its commitment to quality, customer service and now a lifetime warranty.

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From concept, design and through production, Walinga meets the customer's needs at every step. Creating outstanding products that are innovative and durable, with some client's vehicles being passed from generation to generation. Walinga is a leading North American

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Continued on page 25

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Long before hydraulic methods came into play, The Perfect TreeSaw was the true pioneer in the tree cutting industry. With no moving parts and no hydraulics involved it makes the Perfect Sense – simple, with minimal maintenance and significantly cutting fuel expenses compared to other attachments. Tired of the high cost of running hydraulics and operating high maintenance attachments, people want to get back to the basics and keep it simple.

Conservation and Forestry departments across the Nation use the TreeSaw to

meet their needs in timber thinning, wetland maintenance and prairie reclamation. It is widely used to clear CRP ground and fence row clean up. If picking and choosing the trees you need to cut is the issue, the TreeSaw is the solution.

The TreeSaw cuts below ground level leaving no stumps above ground level – giving the cleanest finish job possible. Large cutting capacities



with a best size saw, this means more work can be done with minimal cost. If you are looking for the fastest, minimal maintenance and amazing durability then the Perfect TreeSaw is your answer.

For more information on the Perfect TreeSaw, call us at 660-527-3380, or visit our website at www.theperfecttreesaw.com

C&R Supply, Inc. – Birth Of A Sprayer

After carefully listening to customers who were disappointed with the performance or lack of features in ATV sprayers available, C&R Supply set out to design a series of sprayer to meet their needs.

“Instead of taking an off the shelf tank and attaching features, we needed to get all the input we could from customers and ATV manufacturers”, said product manager Dusty Miller. “With a good vision of what features and options were required, it became obvious that a completely new tank design was needed”.

The EZ ATV Sprayer was designed with the operator in mind for ease of operation and functional ability and safety.

With the sleek design brings the weight forward and more to a center of gravity for better machine balance. Allowing the legs of the tank to wrap around the fenders of the ATV gives the sprayer dual sumps to give maximum drainage and the ability to run on side hills without losing its prime. The pump, strainer, and main shut-off are mounted underneath the tank in a protected cavity, which also serves as a dual slosh baffle. The top of the tank is designed with a fill catch area to prevent chemical from getting on the operator. The EZ is fitted with a 4 gpm Shurflo Pump and a quality Tee-Jet trigger style handgun in the convenient control panel at your

side. All brackets and boomless nozzle or boom accessories are attached to the tank for quick and easy mounting. The EZ ATV Sprayer has several different options and accessories to meet your requirements and needs.



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C&R Supply, Inc. is a distributor and manufacturer of agricultural and roadside spray equipment located in Sioux Falls, South Dakota. For over 35 years, C&R Supply, Inc. has been a leader in the distribution and servicing of many quality products from Raven Industries, Spraying Systems, Banjo, and more. They also lead the way in designing and manufacturing new and advanced products such as their C&R Foam Marker, Spot Sprayer, and the EZ ATV Sprayer featured in this ad. C&R is a provider for precision ag products such as GPS guidance systems, variable rate controllers, mapping, steering assist systems, and chemical injection units. C&R prides themselves on the knowledge and experience that is required to keep up with today's technology.

Walinga

Continued from page 22

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Tranquility Water Device

Two years ago the only improvement this small Ohio dairy farm could afford was a few hundred dollars for a small water structuring device. They installed it into the pipe to one of the drinker tanks.

With three other watering tanks easily available, it was a surprise when all eighty cows refused to leave the new water. Within a week more surprises were showing up. The milk yield was up about a pound per cow, and butterfat was so high the farm was able to get a much better price on their milk. Then three cases of mastitis cleared up without antibiotics. The manure had a cleaner smell to it. One

cow was thinner and due to be sold off. She started filling out so they decided to keep her and got a fine calf out of her.

After about a year the farm added a few more water structuring inserts to the tanks and hoses and trace minerals to the feed, adding another bump in the milk yield. The fertility rate went way up and the calves are strong and sturdy. The herd is now up to about one hundred and eighty.

To save money, the farm used only manure on the feed crops, corn, and alfalfa. The neighboring farms were loading chemicals and fertilizer on their fields. Even when the corn was planted three weeks later than other

farms in the area, it was outgrowing the other fields. The alfalfa came up thick and clean. When the baler was done, he wanted to know why this little farm was getting so many more bales per acre than all the others he'd been baling.

The farmer explained that the only thing they could afford to put on their fields was their cow manure. Even with the drought devastating the rest of Ohio, these crops and cows were thriving. This small Ohio dairy farm is recovering from financial struggle. The demands are increasing with more cows in the herd, and more feed crops needed, but it has managed to keep up, and is achieving solvency. 

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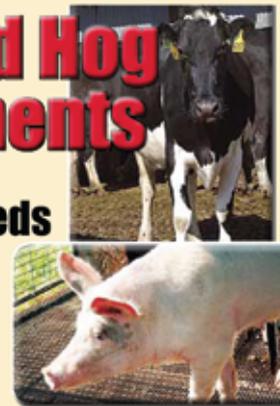
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Tim Gabel continues a family tradition started by his father Bob Gabel in 1970. Bob Gabel perfected a method to reclaim used rubber conveyor belt from the mining industry. This rubber belting is made by using the highest quality rubber and bonding it to steel cables which run laterally through the belt. This process produces a product which is very unique for providing rubber flooring in dairy and horse operations. Rubber flooring greatly reduces concrete stress related to problems occurring in the legs and feet of cows confined to free stall dairy facilities.

The steel cables keep the rubber from stretching and buckling caused by constant livestock traffic and skidsteer scraper machines. The belt stays in place and will last indefinitely as compared to the shorter life of some new manufactured rubber products available today.

Unlike these newer manufactured products, the steel cabled rubber belting has a much greater toughness. This provides for a solid rubber floor effect.



Once the belt is reclaimed from the mine it is shipped to our processing yard in Chaffee, NY. In Chaffee we have machines which were developed by Bob Gabel. The machines process the belt and prepare it for a custom made fit once it arrives at the farm.

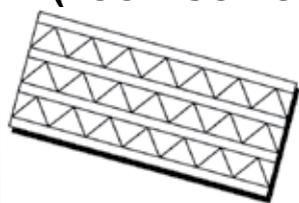
At the processing yard the belting is passed through a grooving machine. The grooves do much to improve footing once the belt is installed in the typically wet environment of free stall dairy operations – most importantly, the feeder alleys and milk parlor holding area.

Once the belt has been processed and prepared for each custom made order, it is shipped to the farm and ready for installation. Gabel Belting has a crew of professionally trained personnel to install the belt.

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CRYSTALYX® Releases Body Condition Score App – BCS Phase 2

In order to deliver an even more effective management tool for supplement and forage decisions, CRYSTALYX® Brand Supplements has released an updated version of the Body Condition Score (BCS) app that is used to monitor Body Condition Scores for beef cow herds. The BCS Phase 2 app has additional features and added content to make it more responsive while retaining its simplicity of use.

“We’ve had very positive feedback about the BCS app from cattle producers, and we’ve learned how to make it even better,” Dr. Dan Dhuyvetter, Director of Research and Nutrition Services for Ridley Block Operations, says.

Producers can now edit or save a record as a draft. That means a producer can collect photos in the pasture and score the cattle at a later time or edit the records when time permits.

“The value of a picture record is that when taking BCS photos of the same cow 45 to 60 days later, a pro-

ducer can determine if the management changes are having the desired effect,” Dhuyvetter says. “Producers are encouraged to body condition score cows at least four times during the year to determine best management practices in the four key areas of late lactation, weaning, pre-calving and breeding.”

Another new feature of BCS Phase 2 is the ability to calculate the mean or average for a date range or a specific date.

“You can then compare that with another point in time and determine if cows are gaining, slipping or maintaining their condition,” Dhuyvetter says.

“No matter what color or breed type of cattle you own, you can now build your custom collection of BCS photos to use in your reference gallery,” Dhuyvetter says. “So Hereford producers can use Hereford cows, Brangus owners can use Brangus cows and any composite operations can use their composite cows.”



“It’s clear that the BCS app has proven its usefulness as a quick and easy tool for collecting extremely important information when managing beef cows from small to large herds,” Dhuyvetter says. “This update takes its effectiveness to the next level.”

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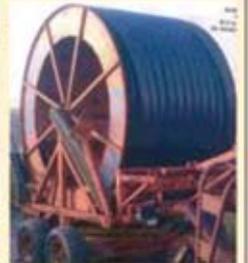
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