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ARDC Director's Comments

Wrapping Up Summer & Welcoming Fall

by Daniel J Duncan, ARDC Director & IANR Ag Research Division Assistant Dean and Director

It is hard to believe that summer is winding down. Students are heading back to school, the State Fair just wrapped up, and harvest is just around the corner. We have had another good summer at the ARDC. It was very dry from May through June. A timely rain in July just as the corn was pollinating turned our thoughts from disaster to optimism. August has brought more rain and increased our optimism of a successful harvest of crops and data. The heat has been hard on the animals; however, they are faring well due to great management and commitment from staff.

Construction projects are moving forward. Work continues on the new beef feedlot and the 11 miles of fiber optic cable is installed. The foundation and floor for the new shop building are poured with the building scheduled to be erected in September. The Facility crew is also busy with several other projects including repairing damage from the July storm that brought much needed rain but also very strong winds.

We were delighted that the Board of Regents approved the program statement for the Greater Nebraska projects. This package of off-campus building projects includes new swine and dairy facilities at the ARDC. The buildings in both of these areas have outlived their planned existence inhibiting the growth of our research programs. We will be working with the Legislature in the coming months to hopefully secure funding for these buildings.

I hope all of you have a safe and productive fall. □

ARDC Feature Unit

Veterinary & Biomedical Sciences



Research Essential In Disease Prevention

by Blaine Clowser, Animal Operations Manager, Veterinary & Biomedical Sciences

The Veterinary and Biomedical Sciences (VBMS) unit, located predominantly in the northeast corner of the ARDC property, consists of approximately 400 acres of grassland. The department currently runs 85 brood cows and heifers; of which 11 are fall calvers. The remaining cows calve in the spring.

VBMS primarily relies on Brome grass pastures and hay for the feed sources for the cows. In addition, alfalfa and haylage are utilized along with cornstalks and bean stubble to round out the feedstuffs for maintaining the cow herd.

The VBMS department directs much of its focus on infectious diseases caused by well-known pathogens, as well as newly emerging pathogens. Many pathogens which cause disease in livestock have similar counterparts affecting human beings. It is becoming increasingly clear that to control the spread of infectious diseases, a greater understanding is necessary in regards to: how pathogens interact with the host and how the host responds to these pathogens, how pathogens persist outside the host in the environment, and how they are transmitted to susceptible hosts. This is where the VBMS cow herd comes into play. This herd facilitates research in the infectious agent arena and other areas such as genetic and/or environmental anomalies.

The VBMS cow herd is a Specific Pathogen Free (SPF) herd. Simply defined, this herd is free of 2 particular pathogens common to cattle in Nebraska - infectious bovine rhinotracheitis (IBR) and bovine viral diarrhea (BVD I & II). Strict adherence to bio-security is critical to the success of this operation because of this SPF status. This is a closed non-vaccinated herd. However, bulls are purchased from outside sources on occasion. A stringent screening process is followed prior to the introduction of the bulls into the herd. Herd health information



Veterinary and Biomedical Sciences cattle herd.

FEATURE UNIT - VBMS - Cont. on P. 2

Upcoming Workshops For Acreage Owners Windbreak Renovation and Pine Wilt Disease

The University of Nebraska- Lincoln Extension presents a series of programs, entitled *Acreage Insights-Rural Living Clinics*, targeting acreage owners and specifically designed to provide them with the knowledge and skills to better manage their rural living environment.

Windbreak Renovation & Pine Wilt Disease, the first program of the series, will be held on the following dates at the Extension office in:

- * Sept. 11, 7-9 p.m., Douglas/Sarpy County, Omaha
- * Sept. 14, 7-9 p.m., Lancaster County, Lincoln
- * Sept. 16, 9-11 a.m., Dodge County, Fremont
- * Sept. 18, 7-9 p.m., Hall County, Grand Island
- * Sept. 21, 7-9 p.m., Platte County, Columbus

Windbreaks are living things and need periodic care and rejuvenation for good health. A serious new threat to the health of windbreak trees across Nebraska is pine wilt; a disease that commonly affects Scotch pine, but can also infect Austrian, jack, mugo, red and rarely white pines. Learn how to cope with the destruction caused by pine wilt disease and how to restore or reconstruct your windbreak without losing its benefits.

Pre-registration is \$10 per person, and must be received 3 working days before the program. Late registration is \$15 per person. If a minimum number of registrations are not received, clinics will be cancelled without notification. In the event of a cancellation, pre-registered participants will be notified and receive a full refund.

UPCOMING WORKSHOPS FOR
ACREAGE OWNERS - Cont. on P. 4

FEATURE UNIT - VBMS - from P. 1

on the bull(s) is gathered from the breeder/owner. This is followed up with at least 2 blood draws, 3-4 weeks apart. The Veterinary Diagnostic Center (VDC) Virology lab runs serology and virus isolation on these serum samples. This provides VBMS with data verifying vaccination induced antibodies or whether the animal was exposed to the actual virus. The 3-4 week separation in blood draws provides VBMS the additional safety of evaluating shifts in the titer levels. If the titers increase between draws, another draw may be required or VBMS needs to select another bull. This is all in an attempt to maintain the SPF status within the herd.



The majority of the research work utilizing this cow herd is performed at the VBMS Animal Research Facility in Lincoln. At this location the animals are separated and housed in isolation rooms to prevent the contamination and provide the containment necessary for successful research. However, projects have been performed on occasion at the VBMS research area at the ARDC for some large Animal Health companies in the past.

Other projects supported by the cow herd deal with congenital abnormalities - be it through Embryo Transfer or Artificial Insemination. This work supports several of the major cattle breed associations who are seeking data on specific bulls which may or may not be carriers of undesirable traits. This work provides essential information to breed associations on the cattle they promote. This research helps differentiate between genetically or environmentally induced abnormalities. Whether it is an actual mating or embryo transfer, some fetuses are permitted to go full-term while others are removed at various stages of gestation. Some abnormalities studied have been Cleft Palate and Mule Foot.

Another area supported by the cow herd is Gnotobiotics - (Germ Free). This is a surgical process where-by the calf is taken at term via cesarean surgery. The unique aspect to this surgery is that it all takes place within a "Bubble". The cow is restrained and laid on her side and given local anesthesia, and then a large plastic bubble is glued to her side. The surgeon and assistant use long sleeved gloves built in to the bubble to perform the surgical process. Once the calf is removed, it is passed into a sterile isolator where it remains for the duration of the study. The entire process provides the researcher the greatest opportunity to have a completely sterile calf as possible. An example of research requiring this level of sterility is in vaccine research efforts.

All cattle utilized for the research efforts are cared for in a humane and safe fashion. It requires many man hours and dedicated professionals to ensure these animals have the best care possible.

On average the cow herd is managed to bring approximately 10-15 replacement heifers back into the spring calving herd with 2-5 replacements back into the fall calving herd on an annual basis. Disposition and maternal traits are the top selection criteria for the VBMS cow herd. Culls and calves not needed for research are sold via local auction. □

About the People

As previously mentioned, many man hours are required to ensure that the animals at the Veterinary and Biomedical Sciences research area have the best care possible. Researchers in the department are involved in research, teaching, extension and diagnostic service throughout Nebraska.

Dr. Doug Rogers is the faculty supervisor of the VBMS area at the ARDC. He is a professor and Diagnostic Pathologist in VBMS and the Veterinary Diagnostic Center. He and his wife Anne reside in Lincoln. He is heavily involved in animal research projects with the majority of his work involving swine.



Dr. Doug Rogers

Blaine Clowser is the Animal Operations Manager for the BCMS area at the ARDC. He

Eating Healthy On the Go: Is that Possible?

by Casey Holstein-Campbell, RD

Casey Holstein-Campbell is a Registered Dietitian with the Nutrition Education Program in Dodge, Saunders and Washington Counties. The Nutrition Education Program (NEP) is sponsored by the University of Nebraska, Extension and the Nebraska Department of Health and Human Services. NEP is a program designed to teach nutrition education to those on food stamps or those who qualify. If you think you or your family may qualify for NEP and are interested in free nutrition education, please call Casey at (402) 624-8022.

In today's society, it seems as if the idea of merely sitting down to a meal is an impossible thought. I personally cannot remember a day that one or more of my meals has not been consumed in the car, at my desk or even when I am drying my hair in the morning! However, with all the running around that we do, is it possible to still eat healthy? Contrary to popular belief, the words, "Healthy Eating on the Go" is not an oxymoron!

It is possible to consume a diet that is adequate in essential vitamins and minerals and yet low in calories and fat, even on the go.



As fall is approaching and the school year is kicking off, many of us feel as if the world is spinning out of control. There are not enough hours in the day to finish tasks, and yet, with the growing rates of obesity, somehow we are still supposed to find time to eat healthy and exercise? Yeah, right! However, it is possible and by this, I do not mean that you have to add extra work to your day. Instead, by making some changes to your already existing routine, it will be possible to achieve your goals of eating healthy and increasing your daily activity, while still staying sane!

Learning to make wise food choices in a short amount of time is key to developing a healthy

lifestyle. For instance, whether that be at home or at the drive thru, it is crucial that you learn how to make healthy food choices, and more importantly, you have to stick to them. One important fact to always remember is that over time our portion sizes have increased dramatically. We are typically served double the calories we were 20 years ago. However, the amount of calories we need each day has not doubled! Therefore, if we do not actively strive to make positive decisions, weight gain will occur with ease! Also, many of the items we commonly choose when eating out are high in fat and sugar. Therefore, it is vital that we pay attention to not only which foods we are choosing, but also how they are prepared and how much we are eating!

Try following some of the tips below to help you and your family make positive choices when it comes to healthy eating and increasing your physical activity.

Food Choices: As stated earlier, it can be very difficult to make positive food choices when on the go. For instance, not many of us would choose the side salad over the French Fries or the yogurt parfait over the chocolate milkshake. This is especially true if you make up your mind as you are ordering. For example, how many times have you gone to the movie theater on a full belly after dinner and yet ordered and ate a large popcorn only because of the smell or because others around you were eating? It is hard not to. However, if you make up your mind ahead of time, you will be much more likely to persevere. For instance, decide before you hit the drive thru, what you plan to order. Tell yourself that you will eat the side salad everyday but Friday, and then let yourself have the French Fries. You will appreciate the taste of the fries much more that way, anyway. Or try and order your favorite dips and sauces on the side. Even salad dressings can add tons of fat and calories. By using fewer condiments, you can actually lower your calorie and fat intake substantially! Lastly, try to avoid empty calories. By this, I mean foods that do not provide us with any nutrition, just calories. For example, regular soda and candy are empty calories. Try to limit your intake of these. As with the salad and French fry example, try to drink water or diet soda most days of the week and then pick one day to let yourself have regular soda.

FEATURE UNIT - VBMS - from P. 2

resides south of Seward with his wife Sharon and two daughters Jessica (17) and Michaela (10). They have a small registered Angus and Shorthorn herd. They are all active in 4-H, FFA, Nebraska Jr. Angus and Nebraska Jr. Shorthorn Associations. His daughter Jessica is the reigning Nebraska Angus Association Queen. They raise a few hogs for 4-H and FFA. Sharon also works for the Vet Sci Department as the Extension Veterinarian Assistant.



Blaine Clowser and Justin Heldt

Both Blaine and Sharon are graduates of Penn State University with Bachelor degrees in Animal Science.

Ben Bergman is a part-time employee. Ben and his wife Jackie live on their family farm south of Ithaca. Ben has lived all his life in the Ithaca area. He and Jackie have 3 sons, Doug, Roger and Jeff. Jackie works full-time for 1st National Bank in Wahoo. They have 6 grandchildren and 1 great granddaughter. Ben is a life-long member of the Zion Lutheran Church of Ithaca and a member of the Saunders County Livestock Feeders. In his off time, Ben enjoys gardening.



Ben Bergman

Justin Heldt is a part-time employee. Justin lives near Yutan and is the son of Mike and Debbie Heldt. Justin and his father farm 1,500 acres in Saunders County and run approximately 200 head of cattle. Justin and the entire Heldt family plant and harvest fruit and vegetables during the summer months. □

Soils & Manure Phosphorus Lessons Available Online

News Source: *LANR News and Publishing*

The UNL Extension Soils Home Study Course is now available online.

The 10, self-paced mini-lessons are available on UNL's Plant and Soil Sciences eLibrary. The beginning level soils lessons are designed to help farmers, consultants and agribusiness professionals involved in crop production understand soils and improve management decisions regarding soils and fertilizer.

Lesson topics include: the origin and development of soils; physical properties of soil and soil water; soil organic matter; soil pH; nitrogen as a nutrient; phosphorus and potassium in the soil; soil and plant considerations for calcium, magnesium, sulfur, zinc and other micro nutrients; characteristics of fertilizer materials; fundamentals of soil testing and the scientific basis for making fertilizer recommendations.

Continuing education credits for the Certified Crop Advisor program are available in nutrient management. Cost to take the online lessons for credit is \$12.

A four-part Manure Phosphorus and Surface Water Protection lesson series also is available through the Plant and Soil Sciences eLibrary, said Charles Wortmann, UNL soils specialist in the Institute of Agriculture and Natural Resources.

Lesson topics include: the process of eutrophication; the relationship of land application of manure and of soil phosphorus dynamics on phosphorus delivery to surface waters; phosphorus dynamics in water bodies that affect phosphorus available to aquatic vegetation; how source factors, including soil characteristics and management practices, and transport factors may contribute to phosphorus delivery to

Calendar of Events

SEPTEMBER

7	UNL Agronomy Club Tour of CMDC	5:30-9 pm
13	Unit Managers Meeting	1-3 pm
18	Nebraska Cattlemen-Region 7 Roundup	6-10 pm
26	Saunders County Extension Board Meeting	7-10 pm

OCTOBER

4	4-H Council Meeting	6:30-10 pm
5	Landscape Maintenance Workshop	8 am-5 pm
11	Unit Managers Meeting	1-3 pm
19	National Science Teachers of America Tour	8 am-1 pm
30	Livestock Production & Career Opportunities	7-9 pm

NOVEMBER

8	Unit Managers Meeting	1-3 pm
13	Livestock Production & Career Opportunities	7-9 pm
20	Livestock Production & Career Opportunities	7-9 pm
21	Saunders County Extension Board Meeting	7-10pm

EATING HEALTHY ON THE GO - Cont. from P. 2

You would be surprised how many extra calories can be avoided. Think of it this way, each 12 ounce can of soda you drink has about 150 calories in it. If you drank only one soda each day, that is 1,050 extra calories every week. Each soda also has about 12 teaspoons of sugar in it. While that may not seem like a lot, it really adds up over time. For instance, that same one soda per day equals 4,368 teaspoons of sugar in a year or 40 pounds of sugar! And remember, that is if you limit yourself to only one can per day- imagine if we choose to super size it!

Preparation: It is also important to check how our foods are prepared when eating out. For instance, broiling and frying can add oodles of fat and calories. Try ordering foods that are grilled or baked. Try opting for a baked potato in place of French Fries, or a vegetable pizza instead of meat toppings. Try to skip on high fat extras like added cheese, butter, mayo and special sauces. Also, depending on where you are, feel free to ask the restaurant to prepare foods another way. Ask if it is possible to have your favorite items grilled instead of fried.

How much are you eating: As stated in the beginning, portion sizes have almost doubled in the last twenty years. Therefore, it is up to you, to watch how much you are consuming. Eating less does not mean you need to go hungry, but you don't need to be stuffed either. For instance, try ordering off the kid's menu, or sharing the larger portions with a friend. Avoid super sizing, even if it is only a quarter more! Also, try to avoid refills especially on regular soda. We saw above how many empty calories we are consuming, try to avoid doubling or even tripling that! Lastly, try eating a little something before going out. For example, try keeping fruit, granola bars or even yogurt handy. It is extremely difficult to stick to smart decisions when you are starving! These small snacks should help you to avoid over eating without leaving you feeling deprived!

Activity: With every healthy lifestyle, it is important to also include some kind of physical activity. You can sigh with relief when I say that this does not mean that you have to go out and buy a treadmill or enroll yourself in an aerobics class! Adding activity can be easy. One tip I have for all my participants is to get yourself a pedometer to measure your steps. Your eventual goal should be to walk 10,000 steps every day. In the beginning, this could be difficult, but give it time! Each day, put your pedometer on as soon as you wake up. At the end of the day, record your steps. Set mini goals along the way and there is no doubt that you will hit those 10,000 steps! Some tips to help increase your steps include:

- * In the parking lot at work or at the grocery store, find a spot a little bit farther away each day
- * Skip the elevator and take the steps
- * Go for a short walk with a co-worker during your lunch break
- * Instead of e-mailing colleagues in the same office, walk over and talk to them
- * Walk around the house while on the phone
- * Walk around the house or up and down the stairs on commercial breaks
- * Walk to a friend's house or the supermarket instead of driving
- * Go for an evening walk with your spouse or kids- it will give you a great chance to catch up! □

References: *Eating on the Go*, Nutrition Education Program Fact Sheet. University of Nebraska, Lincoln. July 2005.

UPCOMING WORKSHOPS FOR ACREAGE OWNERS - from P. 1

Additional programs in the series will be offered in subsequent months, including: **Weed Control on the Acreage (October)**. Learn how to identify and control many of the common weeds. You will learn about chemical and cultural control methods for specific weeds based on the weed's life cycle and its most vulnerable growth stage.

In November, **Nebraska Friendly Landscapes** will focus on enhancing living areas by conserving and protecting water resources, providing biodiversity in plantings, conserving energy and more. Learn design principles, plant placement, maintenance, and plants for a Nebraska-friendly landscape.

For more information, visit the website at <http://acreage.unl.edu> or contact Don Janssen (402) 441-7180, djanssen2@unl.edu or Sarah Browning (800) 830-4855, sbrowning2@unl.edu. □

Fall Landscape Management Workshop

News Source: *IANR News and Publishing*

Whether the questions are about landscape design, tree care, turf or maintenance problems, the fall landscape management workshops September-October across the state will answer them all.

One of the locations includes the ARDC. The workshop will be held on October 5 at the August N. Christenson Building at the ARDC.

The workshops, geared toward groundskeepers, park employees, arborists, turf-care professionals, golf course managers and acreage owners, begin with 8 a.m. registration and start at 8:30 a.m. The workshops conclude at 4 p.m.

"It's kind of a Backyard Farmer road show," said Roch Gaussoin, UNL turf-grass specialist.

The workshops will especially help those who care for large landscapes such as parks, school grounds, college campuses, fairgrounds, golf courses, cemeteries or acreages.

Registration is \$50 before Sept. 15 and \$75 after. Other dates and locations include: Sept. 28, Scottsbluff; Sept. 29, Kearney; and Oct. 11, Norfolk.

Continuing education units are available for certified arborists, golf course professionals, turf-care professionals and park and recreation professionals. For more information or to register, call (402) 472-5045, e-mail jeverson1@unl.edu or visit the Web at <http://arboretum.unl.edu/>.

The workshops are sponsored by the Nebraska Statewide Arboretum, the Nebraska Forest and UNL Extension in the university's Institute of Agriculture and Natural Resources. □

National Conservation Group Visits ARDC

Natural resources, wildlife and agricultural professionals from across the nation met in Lincoln for the 2006 National Conservation Reserve Enhancement (CREP) Forum. The three-day event is highlighting the development of programs and partnerships that work in cooperation with the agricultural industry to address water quality, quantity and wildlife and fisheries benefits. During their Field and Farm Tour they visited the carbon sequestration research area at the ARDC. They also visited the E3 BioFuels site near Mead. Some of the participants are shown examining the carbon sequestration field as Todd Schimelfenig, a Research Technologist with UNL's School of Natural Resources, discusses the project. □



ONLINE LESSONS - from P. 3

surface waters. The fourth lesson addresses the use of phosphorous indexes in the assessment of risk of runoff phosphorous loss to surface waters.

One continuing education credit is available in the area of soil management. Cost to take the lessons for credit is \$12.

For more information about these and other online courses, visit the agronomy and horticulture distance education Web site. Individuals taking the courses for noncredit or CEU credit can register online at <https://estore.adec.edu/>. □



M.E.A.D

Making Education in
Agriculture Different

Mead FFA Monitors Farmers' Fields with Sticky Traps

by Jenny Kocian,
Agriculture Education Instructor

FFA students across the Midwest, including members of the Mead FFA, mobilized to help farmers in their communities monitor for the presence of corn rootworm variants by placing sticky traps in their fields in late July. The Mead FFA chapter distributed and collected traps from 14 area farmers recently.

Over 500 FFA chapters and nearly 8,500 farmers are participating in the program, which will entail monitoring 11,900 test sites in 11 Midwestern states. Sponsored by Monsanto and YieldGard Plus Corn, the sticky trap program is taking place in Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Nebraska, Kansas, South Dakota and Wisconsin.

The western corn rootworm variant lays its eggs in soybean fields, and the larvae hatch when the fields have been rotated back to corn the following season, leading to rootworm feeding in first-year corn. The program will also monitor northern corn rootworms, which may be exhibiting similar variant behavior.

FFA members evenly placed sticky traps throughout participating farmers' soybean fields and left them in place for seven days during the peak flight of adult rootworm beetles. The beetles are drawn to the traps by their yellow color and then are caught on a sticky surface.

FFA youth then removed the traps, counted the number of rootworm beetles embedded on the sticky surface and emailed Monsanto with the results. Monsanto will provide participating FFA chapters with a \$50 donation for each sticky trap site.

An average of six beetles per trap per day suggests a potential rootworm variant problem and the need for management option for the 2007 growing season, according to Clint Pilcher, Corn Trait Technology Development Manager for Monsanto. □



FFA members Ashley Moravec, Amy Wimer, Carol Miller and Allysia Selko share rootworm results with an area farmer.