



Vegetable Grafting- Page 3



Scours Vaccines- Page 6



University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service

Cooperative Extension Service

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AGMatters

January 2025 Produce, Tobacco & Dairy News

Snails Occurrence in Soybean Fields in KY During the Offseason 2024

Felipe Batista and Dr. Raul Villanueva, UK Pest News, 01.14.25

The main loss caused by snails and slugs in soybean fields is the reduction of plant stands by feeding on newly emerged seedlings. Thus, the initial number of snails present in the field by the beginning of the season might have a high impact on the plant population. Consequently, if replanting is necessary or yield loss occurs at the end of the season, it may affect soybean productivity.

We have been monitoring post-harvest soybean fields to evaluate the survival and occurrence of snails and slugs in the fields during the offseason and the impact on the soybean crops in the next season. We do not intend to identify isolated factors that lead to the prevalence of slugs and/or snails in the areas, since this is more a result of a set of conditions than it is any isolated factor. However, based on the history of the areas we have been monitoring over the past couple of years, we can identify some

factors that can contribute to a better understanding and management of these pests in commercial fields.

We have monitored several fields with different characteristics and management. The higher numbers of snails were found in areas with a thick layer of organic matter in the lower part of the field, where higher moisture is found. We found an average of 1.9 vs 1.1 snails/sq ft in the lower and higher parts of these areas, respectively. In other fields in the same region, but with a thinner layer of organic matter, an average of 0.3 snails/ sq ft were found. It is important to mention that we found alive and active snails in these areas even after some days with temperatures below freezing during the second half of November.

We are conscious of the importance of organic matter to the conservation and improvement of the quality of the fields, and we do encourage the use of both cover crops and non-till practices.

Based on these monitoring trials,



Alive and active snail under organic matter in post-harvest soybean field. Princeton, KY, 11/2024. (Photo: Felipe C. Batista, UK).

and on the recent historic presence of snails in these areas, we would like farmers to be aware of potential problems in areas with a thick layer of organic matter, high moisture, irrigated fields, and a lack of control of previously applied measures. We will keep monitoring the presence of slugs and snails in these fields throughout the offseason and testing known and new control measures in order to provide information and reduce the negative impacts of mollusks on soybean fields in the season 2025.

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LEXINGTON, KY 40546



Disabilities accommodated with prior notification.

Upcoming Events

February 4

Winter Wheat Meeting
Hopkinsville, KY

February 4

TN-KY Tobacco Expo
Springfield, TN

February 6

Private Applicator Certification
Christian County Extension Office

February 6

Neopestalotiopsis Disease in
Strawberry Training (see flyer)
Christian County Extension Office

February 6

Kentucky Crop Health Conference
Bowling Green, KY

February 7

KY-TN Grain Day
Logan County Extension Office

February 10

Pennyrile Beekeepers Meeting
Christian County Extension Office

February 11

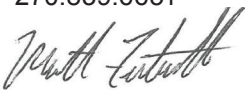
CPH Advantage Cattle Sale
Guthrie, KY

February 13-14

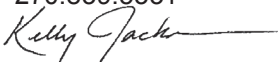
PickTN Fruit and Veg Conference
Franklin, TN

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AGMatters

Strawberry Growers!

Neopestalotiopsis is here. Join us at the Christian County Extension office on Thursday, February 6 from 5:00PM to 6:30PM to hear from Dr. Gauthier and Dr. Wright about your next steps.

Please note the times on the flyer are for Eastern Time Zone. The class will start at 5:00pm for the Central Time Zone. This class will be offered live over Zoom.

You do not need to pre-register.



Martin-Gatton
College of Agriculture,
Food and Environment

NEOPESTALOTIOPSIS DISEASE IN STRAWBERRY:

A New Reality for Kentucky Growers

FEBRUARY 6, 2025
6:00 - 7:30 PM (EST)
WEBINAR VIA ZOOM
REGISTER AT: [HTTPS://BIT.LY/4IF6KTC](https://bit.ly/4if6ktc)



Agenda:

6:00 pm - Managing Neo-pest Disease with Dr. Nicole Gauthier
6:45 pm - Starting Your Own Disease-free Plugs with Dr. Shawn Wright
Q&A session will follow presentations

Cut Flower Production Speaker Line-up

FOR THE 2025
PickTN CONFERENCE

Mark your calendar for Feb. 14 & 15 and make plans to join us in Franklin, TN for 2 full days of cut flower production education delivered by 15 knowledgeable presenters!

Registration opens in December 2024
www.picktnconference.com



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visit our website to find all the UT residential horticulture resources we offer

Real. Life. Solutions.™

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EXTENSION
TOWNSHIP SCHOOL UNIVERSITY

Upcoming Events cont..

February 14

Private Applicator Training and
Paraquat/Gramoxone - 1:00PM
Fairview Produce Auction

February 25-26

Kentucky Dairy Conference
Bowling Green, KY

February 26

FSMA-PSA Grower Training (MUST register by FEB 5 - no late entry)
Todd County Extension Office

February 27

Tobacco GAP Training
Christian County Extension Office

Four Fast Facts About Vegetable Grafting in the U.S.

Matthew Kleinhenz, Vegetable Crops Hotline, 4.18.24

Grafted plant use is increasing rapidly but is still far below its estimated potential. Grafting makes one plant out of two, the root system coming from the rootstock and the above-ground fruiting portion from the scion. Grafted planting stock is the norm in many areas of the world, and although it is less common in the U.S., grafted plant use is rising rapidly. Grafted plants are usually prepared using young seedlings. In 2012, few, if any, grafted plants were produced on a commercial scale; however, U.S. propagators now supply more than eight million plants annually, and many growers are preparing their own grafted plants, learning through programs and resources. Still, that production is thought to be less than 1% of the potential market for or eventual use of grafted plants in the U.S. Demand for grafted plants by vegetable growers managing greenhouse, high tunnel, and open field plantings of different scales and approaches (e.g., organic, conventional) continues to increase sharply.

Industry-University-USDA teams are working to increase access to and success with grafted plants throughout the industry

Grafted vegetable plants are now more available and important to some growers than ever before, but much more is required to maximize their value throughout the industry. Experts in plant breeding, plant propagation, engineering, crop management, economics, and other fields – including at Purdue University — are testing ways of improving people's experiences with grafted plants. They focus on improving grafting and grafted plant distribution methods and increasing access to grafted plants, including reducing their cost and increasing their availability

to all growers, regardless of where or how they farm. Research and extension personnel also help growers unlock the full economic potential of grafted plants through adjusting cultural, nutrient, irrigation, harvesting, and other aspects of management, as needed. The overall goal of this collaborative work is to raise the value of grafted plants to those who prepare and/or use them. Globally, the technical literature includes more than two thousand articles and reports describing industry-focused efforts to advance the use of grafted plants as products and production tools. Growers of tomato and watermelon have been the first to gain from using grafted plants, and growers of pepper, eggplant, cucumber, and specialty melon have also been benefitting.

Rootstock (RS) traits, availability, and selection remain key

All farming outcomes result from the specific combination of crop genetics and nearby environments involved. Success requires selecting crops and varieties ideally suited for growing conditions they are likely to experience and then ensuring those above- and below-ground conditions are ideal as often as possible. Using grafted plants vastly increases the arsenal of traits available to most vegetable growers that could be useful in that process. Including all traits that may be important (e.g., vigor, soilborne disease resistances, tolerances to abiotic stresses) in all varieties has been impossible and is likely to remain so for many years. Grafting eliminates the need for compromises required when using single-variety nongrafted plants. 'Physical hybrids' created through grafting allow root and shoot traits to be included in separate varieties that are later combined through grafting. This is why RS varieties should interest many vegetable growers. RS varieties available in the U.S. are listed and described in tables available

at <http://www.vegetablegrafting.org/resources/rootstock-tables/>.

From the tables, we can learn:

(a) sixty-two Solanaceous RS varieties can be used with tomato, thirty-two with eggplant, and sixteen with pepper, but only one can be used with all three crops.

(b) Solanaceous RS varieties carry reported resistances for various combinations of sixteen diseases and root-knot nematode.

(c) forty-one Cucurbit RS varieties can be used with watermelon, thirty-one with specialty melons, nineteen with cucumber, and seven can be used on all three crops.

(d) Cucurbit varieties carry reported resistances for various combinations of thirteen diseases, root-knot nematode, and tolerance to cold, heat, and/or drought stress.

A word about RS-scion (fruiting variety) compatibility: it is important. Rules of thumb apply. For example:

(a) company recommendations (e.g., reports of a RS being best for one or more crops) should be taken seriously.

(b) if a RS is listed as compatible with 'tomato' or 'watermelon', it will graft well to all scion varieties of those crops but its influence on them may differ. Therefore, RSs should be selected based on quality information and more than disease resistance, if possible. *continued on pg. 8*



Are Growth Promoting Technologies Becoming a Lost Art for the Cow-Calf Sector

Dr. Katie VanValin, University of KY

Growth promoting technologies, when used correctly, are valuable tools that improve efficiency and increase weight gain in growing cattle. In the cow-calf sector, these include ionophores and implants. Although “technology” often implies new, these tools have been in the beef industry for decades. Yet, adoption seems to be stagnant or even declining – why?

Ionophores

Ionophores are antimicrobial feed additives, including monensin (Rumensin®), lasolacid (Bovatec®), and laidomycin propionate (CATTLYST®). While ionophores antibiotic-like, they are not considered medically important for humans, so they do not require a veterinary feed directive (VFD) this means ionophores do not fall under the veterinary feed directive (VFD) and can be purchased without a prescription. However, as they are classified as a medication, they must be bought premixed from a feed dealer.

The rumen hosts a multitude of microorganisms that digest feed and produce volatile fatty acids (VFAs), which the animal uses for energy. Acetate is the most common VFA, but propionate is more energetically efficient. Feeding ionophores shifts production towards propionate, leading to increased average daily gains, improved feed efficiency, and reduced methane production! Ionophores also help prevent bloat, acidosis, and coccidiosis! It is no surprise that ~90% of cattle on feed in the United States consume ionophores.

While ionophores are typically used for growing cattle, they can benefit replacement heifers and cows by decreasing the age of puberty, and shortening the post-partum interval,

thus benefiting reproductive performance.

Ionophores can be mixed into feed, and there are also some pre-mixed products like free-choice minerals and tubs. Always read and follow all label directions, as toxicity can occur when feeding at high levels. Horses are particularly sensitive to ionophores, so avoid accidental feeding.

Implants

Implants are small pellets containing hormones, that are inserted into the back of the ear. Over time the implant is absorbed and utilized to increase the secretion of growth hormone, promote protein synthesis, and decrease protein degradation, resulting in increased average daily gain. Implants have been around for decades and are arguably one of the most consistent practices we have in all of agriculture. Suckling calves implanted at around 90 days old often have weaning weights 10-20+ lbs higher compared to non-implanted calves.

However, a recent survey of Kentucky beef producers noted that only 21% implant their calves. This means potential revenue is left on the table. My rule of thumb is that unless we receive a premium that covers the money we are leaving on the table, we should absolutely be implanting calves.

Implanting is quick, taking less than 1 minute. With calves at \$2.70/lb. and an added 20 lbs. from implanting, a 500 lb. calf is worth \$1,350 vs. a 520 lb. calf \$1,404. The cost of calf-hood implants is less than \$2.00 per head. For a 30 head herd, an extra half hour of work yields an additional \$1,600.

Implanting suckling steer calves can also lead to similar gains as an intact bull calf, allowing for early castration without growth and avoiding discounts

from the sale of bulls. Research shows that early castration is less stressful vs. castration at or after weaning. Implants are an effective strategy to capture growth, but also reduce stress on the animal.

For heifers, timing is key. Some research shows that implants negatively impact fertility, depending on when they are administered. The general recommendation is not to implant replacement heifers; however, heifers marketed as feeders can and do benefit from implants.

Be mindful of the implants payout period- or the time it is effective. To get the full benefit be sure that implants are administered far enough in advance to capture the full payout period. For example, if an implant has a payout period of 100 days, implant at least 100 days prior to marketing.

If ionophores and implants are not part of your management, consider how they could benefit your operation. If you are not using ionophores or implants as part of your management strategy. Regardless of market conditions, these technologies are safe, proven, and effective ways to increase revenue in the cow-calf sector.



Photo: Ohio State University

Injector Calibration

Nick Flax, Perennial Pulse, 11.27.24

Most growers use injectors to deliver nutrients from water soluble fertilizers. Nick Flax shares how to properly maintain and calibrate the equipment.

PROBLEM: Injectors are the backbone of some of our most critical growing tasks. From fertilizer applications and correcting deficiencies with amendments to applying insecticides and fungicides, injectors are daily workhorses that shouldn't be neglected. If you haven't given your injector some TLC in recent months, check your calibration and perform routine maintenance now—or at least before spring crops start arriving.

Over time and with frequent use, your injector's calibration can "drift." This means you may be over or underfeeding your crops or not applying insecticide or fungicide drenches at the correct rate. A calibration check is the easiest way to make sure your injector is hitting its mark. To do this, you'll need the injector (of course), an EC meter, your favorite fertilizer and a cup or beaker for sample collection.

- First, run your clear water for a couple of minutes and collect a sample in a clean cup. Test your raw water's EC and write the value down (for example, raw water EC is 0.41 mS/cm).
- Next, find the label on your fertilizer bag, select your desired feed rate and injection ratio (ex. 200 ppm N at 1:100), and find the corresponding EC value that you should be getting at the end of your hose (for instance, if the label says at 200 ppm N 1:100, EC should be 1.29 mS/cm).
- Add the raw water and fertilizer target EC values (like ... $1.29 + 0.41 = 1.70$ mS/cm).
- Next, set your injector ratio to the prescribed setting. In this case, adjust to 1:100. Run your injector for a minute or two, allowing fertilizer stock solution to fully enter the injection stream. Collect a sample from your hose and test the solution's EC.
- If the EC value is close to what your math says it should be, your injector is good to go. Repeat this quick check

several times throughout the season and adjust as follows:

- If the EC value is too low, reduce the denominator of your injector ratio. (ex. if your target EC is 1.70 mS/cm at 1:100 but the test reads 1.50 mS/cm, change the ratio to about 1:90, run the injector for about one minute, collect a fresh sample and retest.
- If the EC value coming out of your injector is too high, do the opposite and increase the denominator (An example would be 1.90 mS/cm when it should be 1.70 mS/cm).
- Retest and readjust until the EC of the solution coming out of your hose is close to what it should be, per the fertilizer label and your quick math.

If calibration adjustments to your injector are large (for example, you need to set it to 1:75 to achieve the target EC that your fertilizer bag says you should achieve at 1:100), it's time to service your injector. For many piston-driven injectors, manufacturers sell rebuild kits that include new O-rings, diaphragms and other parts that wear out over time and need to be replaced. Always follow manufacturer recommendations for self-service repairs and rebuilds, and make sure that you do not void any warranties that may be active for your injectors.

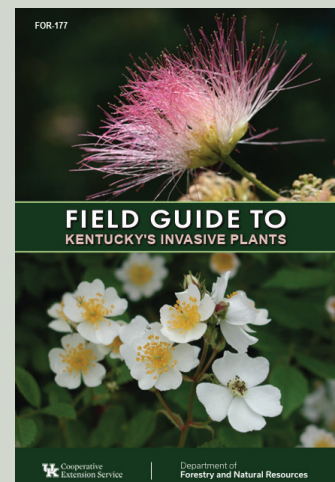
NOTE: For computerized and other digitally-driven injector systems, contact the manufacturer and schedule a service appointment ASAP. Parts and labor availability always get tight leading into spring, so don't wait until the week before major planting starts in your operation to get your system tuned up.



Field Guide to Kentucky's Invasive Plants (FOR-177)

This guide provides detailed profiles of the most prevalent invasive trees, shrubs, vines, grasses and herbaceous plants that threaten Kentucky's ecosystems. Each species is presented with full-color photographs, information about its origins, distribution, threats to native biodiversity and effective control methods. From the hardy callery pear to the pervasive kudzu vine, the guide highlights the threats these species pose to forests, fields and waterways.

The book also emphasizes practical management techniques, offering guidance on hand removal, herbicide application and integrated approaches tailored to site-specific conditions. Special attention is given to balancing ecological health with practical land management goals, ensuring that users can address invasive species responsibly and effectively.



Contact the Christian County Extension office to request a copy - (270) 886-6328

Scours Vaccines: What Are the Options?

Dr. Michelle Arnold – DVM, MPH UK
Ruminant Extension Veterinarian

Neonatal calf diarrhea is defined as scours occurring within the first 3 weeks of a calf's life. Viruses (rotavirus, coronavirus), certain bacteria (*E. coli* K99; *Clostridium perfringens* Types A and C, *Salmonella* spp.) and the protozoan parasite *Cryptosporidium parvum* are the most common causes in beef cattle operations. Controlling rotavirus, coronavirus, *Clostridium perfringens* Type C, and *E. coli* K99 scours through vaccination can significantly reduce calf sickness and death loss when given correctly. Scours vaccines are formulated to be given to pregnant cows and heifers during the third trimester of gestation so they will make the specific antibodies against the pathogens that cause diarrhea while colostrum is being formed. It is important to remember that scours vaccines given to pregnant cattle will only work if an adequate amount of good quality colostrum is consumed by her newborn calf within the first 12 hours (preferably the first 6 hours) of life. If unable to vaccinate the pregnant females in the herd, a variety of products can be given to newborn calves to help reduce the risk of sickness and death from scours as well.

The three most popular vaccines available for use in pregnant cattle are ScourBos®9 and 4 (Elanco), ScourGuard®4KC (Zoetis) and Guardian® (Merck). The first time scours vaccines are used, a two-shot series must be given in the third trimester of pregnancy consisting of a first or "primary dose" followed by a booster dose. After the first year, just one annual revaccination in late gestation is required every year throughout the cow's reproductive life. Vaccination timing is critical to stimulating and optimizing antibodies in colostrum. If cows are vaccinated too early in pregnancy, the antibody response may start to fall

off prior to the colostrum being made. Vaccinating too late and the colostrum may already be produced before an antibody response is mounted. Which product is chosen often depends on when cattle will be worked; ScourBos® is administered earlier during pregnancy, ScourGuard® is used latest in gestation and Guardian® is in-between these two options. Obviously not all calves will be born the first week of calving season but plan to give the scours vaccine based on when the first calves of the season are expected. Consider administering an additional dose to those females who have not calved within 2 months of receiving their scours vaccine.

It takes some planning to vaccinate correctly; timing is critically important when selecting the correct product for your operation:

1) For pregnant heifers (or cows) receiving their first or "primary series" of scours vaccine, manufacturers give a date range for one dose and a set date for the other dose that varies depending on vaccine chosen. Note that Guardian is the only one administered subcutaneously.

- ScourBos®9 –Administer the first dose (2 ml IM) 8-16 weeks prior to calving and booster with ScourBos® 4 given 4 weeks prior to calving;
- Guardian®- Administer the first dose (2 ml SQ) 12 weeks before calving and the second dose 3-6 weeks later;
- ScourGuard® 4KC-Administer first dose (2 ml IM) 6-9 weeks before calving and give the second dose 3 weeks later.

2) Cows (Annual revaccination)-

- ScourBos®9 –Administer 8-10 weeks prior to calving season
- Guardian®-Administer 5-7 weeks before calving season
- ScourGuard® 4KC-Administer 3-6 weeks prior to calving season

If the cow herd is not vaccinated and a calf scours problem develops,

several products are available to administer to newborn calves. The First Defense® product line includes the Tri-Shield® gel tube, Dual-Force® gel tube, First Defense® bolus and First Defense Technology® bulk powder. These products are antibodies given by mouth as quickly as possible after birth. First Defense® makes their products by collecting antibody-rich colostrum that is purified and concentrated, then standardized to guarantee antibody levels for each dose. These antibodies bind directly to bacterial and viral antigens, ideally before they can enter and harm cells in a calf's gut. These are not vaccines, so the calves are not required to trigger an immune response for protection. Although these antibodies will provide immediate protection in the gut, they are much more effective when given at the same time as good quality colostrum. Be aware of the label claims when using First Defense products (see Table 1); not all pathogens are covered by every product. First Defense® Tri-Shield® gel offers the broadest coverage, specifically aiding in the reduction of mortality (death) and morbidity (sickness) from scours caused by *E. coli* K99 and coronavirus while also reducing the severity and duration of scours caused by rotavirus. Interestingly, the First Defense® gels have an added blue dye that renders the calf feces green, allowing the producer to know the gel has gone through the calf's GI tract. For an economical option, First Defense® offers a nutritional supplement powder with the same ingredients as the boluses, and it is shelf stable in a resealable bucket. One level scoop is mixed with fresh or thawed colostrum until completely dissolved and then fed to the newborn calf.

Commercially available vaccines have also been designed to be administered to the newborn calf for protection from certain viruses. Calf-



	First Defense® Bolus 5 or 30 Dose	First Defense Technology® 90-Dose Bulk Powder	Dual-Force First Defense® Single-Dose Gel Tube	Tri-Shield First Defense® Single-Dose Gel Tube
Pathogen Prevention				
<i>E.Coli</i>				
Coronavirus				
Rotavirus				

Table 1: Retrieved from : <https://firstdefensecalhealth.com/dual-force-bolus-gel/>

Guard®, manufactured by Zoetis, is an older product that contains attenuated (modified live) strains of bovine rotavirus and bovine coronavirus. It can be administered either by injection to a pregnant cow within four weeks of calving or to newborn calves by mouth before nursing to help protect calves from scours caused by rotavirus or coronavirus. A brand-new product, Bovilis® Coronavirus (Merck), is an intranasal vaccine administered to healthy calves 3 days of age and up to reduce the duration and severity of



Figure 1: Retrieved from <https://www.merck-animal-health-usa.com/species/cattle/products/bovilis-coronavirus>

diarrhea due to bovine coronavirus (Figure 1). To protect against Clostridium perfringens Type C, Colorado Serum Company produces a C. perfringens Types C & D antitoxin (Figure 2) labeled for prevention lasting approximately 3 weeks after 10 ml administration SQ at birth. However, there is limited availability of this product because of stringent testing requirements in equine donor animals as this product is made from equine serum.

Preventing calf scours is much more about management than simply administering a vaccine. Cow nutrition during and after gestation, careful monitoring of the calving process, and environmental factors all contribute to a successful start. The cows' diet must provide adequate energy, protein and trace minerals to meet her needs during gestation and lactation, especially during winter. Remember up to 80% of fetal growth occurs in the last 50 days of gestation and colostrum production ramps up during the final 4-6 weeks of pregnancy. Monitor body condition scores and be ready to offer

supplemental feed to maintain a BCS at calving of 5 in mature cows and 6 in heifers. A nutritionally deprived dam will produce poor quality and quantity of colostrum, have less energy to deliver a calf quickly, and will be slow to rebreed. Calves born to energy deficient dams will be slow to stand and nurse.

Monitor and be ready to assist with calving early as necessary, especially with heifers. Make sure calves start nursing as soon as possible after calving, keeping in mind that calves should stand within 30 minutes of delivery and nurse within 30 minutes of standing. If in doubt, use a good quality colostrum replacer and feed the calf at least twice during the first 6 hours of life. Once the calf has received colostrum, it is still important to prevent the “bad bugs” (pathogens) in the environment from overwhelming the calf’s immune system. Over time, calves infected earlier in the calving season are “pathogen multipliers” and become the primary source to younger calves. Calf scour pathogens will build up *continued on pg. 8*

continued from pg. 3

Careful, deliberate on-farm testing is useful and help is available now

Experience from focused research and on-farm testing each season continues to reinforce the idea that getting the most from grafted plants often requires managing them differently, perhaps beginning before planting and continuing through harvest. The biology of some rootstocks and rootstock-scion combinations can require growers to alter various standard practices to gain fully from using grafted plants. Those practices are typically developed through years of experi-

ence with nongrafted plants, so it can be difficult to give them up. Getting the most from grafted plants may require reducing preplant or after-planting fertilizer rates and/or plant populations (using wider spacing) and/or altering irrigation programs or harvest schedules, since grafted plants can be more vigorous and efficient with nutrients and water. Reducing plant numbers and inputs can help offset the cost of grafted plants. Regardless, growers looking to maximize their returns on investments in grafted plants are encouraged to connect with experienced

grafted plant users and testers, consult reports, and experiment carefully.

Growers rely heavily on traits available in their planting stock. Delivering all the traits growers require in single-variety nongrafted plants has been impossible and is likely to remain so for many years. Grafting speeds the delivery of traits to farms and, in combinations, often unavailable in nongrafted plants. Teams are working to overcome the challenges associated with relying on grafted planting stock much more heavily.

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exponentially in the environment as the calving season progresses.

Poor sanitation, cold, wet weather and overcrowding all contribute to a higher risk of disease, especially conditions in calving and maternity areas. Exposure to bacteria, viruses, and protozoa occurs through direct entry of manure to the mouth of a calf by contact with manure-contaminated teats, soiled bedding, and through self-grooming. Calving in the same area for an extended period of time greatly increases the disease risk to the youngest calves, especially in wet or muddy conditions. If possible, pregnant cows close to calving should be rotated onto clean pastures while cow-calf pairs remain on the old pasture. If calving in a barn or shed, the calving area should be kept as clean and dry as possible with frequent changes of bedding to remove the build-up of organisms. Make every effort to get the cow and newborn calf out of the barn quickly to lessen the chances of infection. Even the best calving management practices will have no effect if the first thing a calf ingests is manure from the calving area. Consult with your veterinarian on ways to address a calf scours problem and the best choice of vaccines for your operation.

The UK Veterinary Diagnostic Laboratory has an excellent test to diagnose the cause of calf diarrhea. A small sample of scours (in a leakproof container) from a calf that has not been treated for diarrhea with antibiotics is the best sample to run the test. The “Calf Diarrhea Panel” is a PCR assay that detects the nucleic acids in bovine coronavirus, rotavirus, E. coli K99, Salmonella and Cryptosporidium. Results are available within 2-3 days and costs \$62.75 + \$10 Accession Fee. Visit the website at <https://vdl.uky.edu/> for more information or call (859) 257-8283.

**The products described are for educational purposes only and should not be considered an endorsement by the University of Kentucky.*

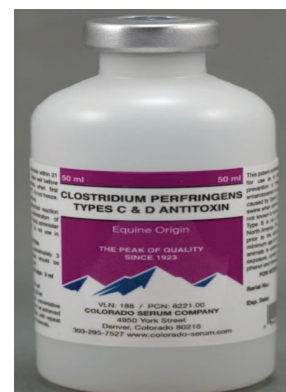


Figure 2: Retrieved from <https://colorado-serum-com.3dcartstores.com/cd-antitoxin>



Scan QR code to go to UK Beef Cow Forage Supplementation Tool.