



Cattle Health News

A Publication of the New Jersey Department of Agriculture, Division of Animal Health

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Welcome to Cattle Health News!

This newsletter is the first issue of a bi-annual report to New Jersey cattle stakeholders and bovine veterinarians. Through it we hope to help all dairy and beef producers in the state keep abreast of industry trends and emerging issues. Of course, the biggest issue to impact New Jersey's bovine population is the Drought of '99. NJDA's tollfree drought hotline, 1-877-778-7785, is still open from 8:30 am to 5:30 pm weekdays and you can leave a message at all other times.

Moreover, because it is so vital that you stay in contact with your county agricultural agent, we have provided a list of phone numbers elsewhere in this newsletter.

In addition, Dr. Mike Westendorf of Rutgers

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Johne's Disease: The Basics and What You Can Do

Imagine a hidden disease sneaking into your herd and quietly stealing economic returns for years before you suspect a problem. Once discovered, imagine spending several more years to rid yourself of the culprit. That's how Johne's (YO-nees) Disease works. Left unchecked, this infectious bacterial disease can wreak havoc in your herd's production, profitability, and future herd replacement animals.

Johne's is a disease with a long incubation period (usually 2 to 4 years after initial infection) that can creep into your herd and spread before cattle show any clinical symptoms. Infected animals may show no signs of the disease until years after the initial infection, which usually takes place

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during calthood. But because it is often a silent disease in the beginning stages and you don't see symptoms of the disease, don't think that your animals do not have Johne's. It is easy to miss unless you go looking for it! Johne's infects beef cattle as well as dairy, although the percentage of infected beef herds is less nationwide due to husbandry differences and less overcrowded conditions in raising beef cattle.

How are cows infected?

Even though the disease does not reach clinical proportions until the second or third lactations, most infections actually occur near birth. The causative agent, *Mycobacterium paratuberculosis*, is transmitted fecal-orally through manure, milk, and colostrum to newborn calves and youngstock. It can also be transmitted fecal-orally to older animals. In addition, up to 25% of calves born to infected cows may be infected in utero. Most often calves are infected by swallowing a small amount of manure from the environment or from the udder, or from nursing contaminated colostrum. The

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NEW JERSEY
DEPARTMENT OF AGRICULTURE

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bacteria can also be transmitted in milk. Feeding pooled milk to calves is one sure way to spread Johne's disease to a large number of calves all at once.

A second means of infection in a herd is purchasing infected replacement animals. If these subclinical animals are physically near calves or young heifers, their infected manure can be ingested by the younger animals, and infect more of your future herd.

What are the signs of infection?

In an infected herd, noticeable signs commonly begin following a stressful event like calving. Johne's disease causes weight loss,

diarrhea, lowered milk production, wasting and emaciation, and eventually death in mature animals but there are no clinical signs in young stock. After a long incubation period, the bacteria grow slowly in the small intestine, where it causes a gradual thickening of the intestine. When it is so thickened, nutrients cannot be properly absorbed and diarrhea results, proteins are lost, and the animal gets thinner and thinner. The diarrhea comes and goes but, as time progresses, gets worse and becomes non-responsive to common treatments. Before you even see diarrhea, however, in many cases, you will see a drop and steady decline in milk production. Sometimes, you will see "bottle jaw"

- a thickening under the neck of the mature animal. **There is no treatment for Johne's disease.**

What if you suspect a problem?

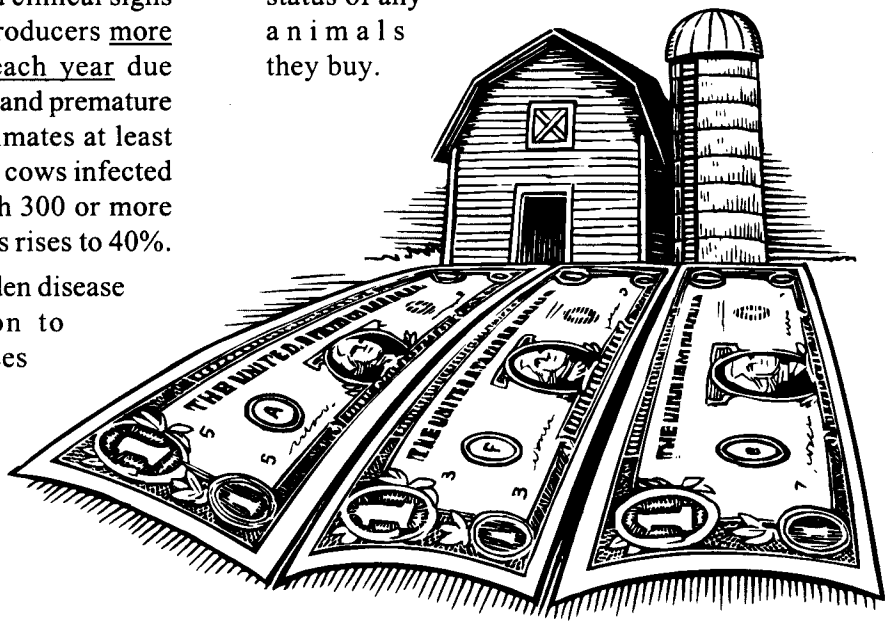
NJDA's Division of Animal Health offers an active, voluntary Johne's control program to all dairy farmers. Call us immediately if you suspect Johne's because the longer you wait to identify the infection in your herd, the more opportunity it has to spread. In fact, if left alone, Johne's disease explodes exponentially in your herd! **The most important thing you can do is learn more about the disease and how to reduce risk of infection.**

How Much Can Johne's Really Cost You?

Due to the slow and progressive nature of the disease, most producers have no idea how much money Johne's disease is costing them! According to NAHMS (National Animal Health Monitoring System), in test-positive herds where at least 10% of animals culled in the past year had clinical signs of Johne's, the disease cost dairy producers more than \$200 per cow in inventory each year due mostly to decreased milk production and premature culling. Furthermore, NAHMS estimates at least 22% of the nation's dairy herds have cows infected with Johne's and, in U.S. herds with 300 or more cows, the number of infected animals rises to 40%.

The economic impact of this hidden disease is so great because, in addition to decreased milk production, it causes premature culling of exposed, infected, or clinical animals; possible breeding problems; and increased veterinary costs. Moreover, producers who sell breeding stock replacements or

recipient females face increased liability since the seller shoulders the responsibility for knowing the Johne's status of any cattle they sell. As buyers become more aware of the disease, they will insist on knowing the Johne's status of any animals they buy.



Herd Management Changes That Make a Difference

The following recommendations are the basic principles of managing Johne's out of your herd. When combining a test and cull program with excellent management practices, you can get rid of Johne's in about 4 to 5 years. The critical management changes all revolve around calving, care of the young and manure management. With management changes alone, it will take about 8 to 15 years to rid your herd of Johne's.

CALVING

- Calve away from rest of the adult herd in a clean area, well-bedded and **free from manure**.
- Wash the cow's udder before calving.
- Remove calf as soon as possible, preferably within 30 minutes. Do **NOT** allow calf to suckle.
- Feed calf a colostrum replacement product or frozen colostrum from cows that have consistently tested negative for Johne's.

RAISING CALVES

- Raise all calves separated from adult cattle until breeding age. They must **NOT** be exposed to **ANY** adult manure.
- Use calf hutches.
- After colostrum replacement, feed calves milk replacer. **AVOID** pooled milk and waste milk from the adult cows.

HANDLING ADULTS

- Test all adult cattle two -- and sometimes three -- times the first year and at least once a year thereafter. If you have a Johne's infected herd, it is better to test several times each year to help you find more positives, and cull them.
- Do fecal cultures on those adults that have a positive ELISA test. You do not have to cull an animal simply based on an ELISA test alone unless you want to be aggressive in managing the disease. The "gold standard" is the fecal culture. However, if the animal is showing clinical signs and is ELISA positive, don't wait 4 months for a fecal culture confirmation. Cull her right away.
- **Cull any adults that are fecal positive or showing clinical signs.**
- Keep feed and water clean of manure, to avoid infecting more adults. Spread manure only on crop land, not on hay fields or pastures to be grazed within 12 months.
- Do **NOT** contaminate your feed by using skid loaders or other equipment that has been used for manure handling. Wash and disinfect between uses or, better yet, purchase equipment that has a changeable bucket.
- Do **NOT** purchase any infected replacements. When buying adults, ask the seller to test for Johne's in the animal's herd of origin and inquire about the herd's management before buying. When buying young animals, ask the seller to have the dams, or other older herd-mates, tested.

How do you test for Johne's ?

There are two tests available, both used only in animals two years and older. Neither is 100% accurate but, when used together, they can be powerful tools in diagnosing Johne's.

The more reliable of the two tests is the fecal culture, which takes 16 weeks to incubate since the organism grows so slowly. However, since the bacteria is shed sporadically, the results of a fecal culture may differ significantly in specimens taken from the same animal. If the animal is under stress, such as calving, or in an advanced stage of Johne's - showing clinical signs - she will be most likely to shed large numbers of the bacteria, making the fecal culture extremely accurate.

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Extra-Label Use of Drugs and The Gentamicin Issue

The Animal Medicinal Drug Use Clarification Act (AMDUCA) of 1994 allows veterinarians to prescribe a drug in an extra-label manner to treat food-producing animals when the health of the animals is immediately threatened and suffering or death would result from failure to treat them. An "extra-label manner" is the

use of an animal drug in a food-producing animal in a way that is not in accordance with the drug's labeling.

However, strict conditions and responsibilities must be met for a permitted extra-label use of both animal and human drugs in food-producing animals. All the following **must** apply:

AMDUCA Requirements for Extra-Label Drug Use

1. A careful medical diagnosis is made by an attending veterinarian within the context of a **valid veterinarian-client-patient relationship**.
2. A determination is made that
 - a. **there is no marketed drug specifically labeled to treat the condition diagnosed**, or
 - b. the veterinarian **has found drug therapy** at the dosage recommended by the label **clinically ineffective** in the animals to be treated.
3. Procedures are instituted to insure that the **identity of the treated animals** is carefully recorded.
4. There is a **substantially extended withdrawal period**, supported by appropriate scientific information, prior to marketing meat, milk, or eggs from treated animals and **steps are taken to insure** that the assigned withdrawal time is met and **no illegal residues occur**.
5. The prescribed or dispensed extra-label **drug bears labeling information** which is adequate to insure the safe and proper use of the product. The label must have the following information:
 - a. the **name and address of the veterinary practitioner**;
 - b. the established **name of the drug** (active ingredient or ingredients);
 - c. **directions for use** specified by the practitioner, including the species identification of the animals and the dosage, frequency, route of administration, and duration of therapy;
 - d. any **cautionary statements** specified by the veterinarian;
 - e. the **veterinarian's specified withdrawal/discard time(s)** for meat, milk, eggs, or any food which might be derived from the treated animal(s).

Use of a human drug is not permitted if there is already a comparable veterinary drug approved for use in non-food animals. For extra-label use of an approved human drug or a veterinary drug approved for use only in non-food animals, the following additional conditions must be met:

- There must be an appropriate medical rationale.
- If human food safety information is not available, make sure that the animal will **NOT** enter the human food supply.

AMDUCA specifically **prohibits** advertising and promotion, extra-label use of drugs in animal feed, and

extra-label use of drugs for non-therapeutic (for example, reproductive) uses. In addition, **certain drugs are prohibited from extra-label use in food animals**. As of January 1998, these drugs were chloramphenicol; clenbuterol; diethylstilbestrol (DES); dimetridazole; ipronidazole and other nitroimidazoles; furazolidone and nitrofurazone (except for approved topical use); sulfonamide drugs in lactating dairy cattle (with the exception of sulfamethoxine, sulfabromomethazine, and sulfaethoxypyridazine); fluroquinolones; and glycopeptides such as vancomycin.

What about Gentamicin?

Nearly every cattle producer has heard of the antibiotic gentamicin, sometimes called gentamicin sulfate, and its potent antibacterial qualities.

If a veterinarian has used gentamicin in your animals in the past, he or she was prescribing it in an extra-label manner. Such extra-label uses of gentamicin include, but are not limited to:

- Use in species not listed on the label;
- Use for diseases or conditions not listed on the label;
- Use at dosage levels, frequencies, or through routes of administration other than those stated in the label;
- Deviation from the labeled withdrawal time.

It is with regard to the last bullet that gentamicin poses a problem when used in cattle destined for human food use because the **withdrawal time for it has NOT been scientifically established**. In fact, the withdrawal time for gentamicin in cattle is unknown. Ac-

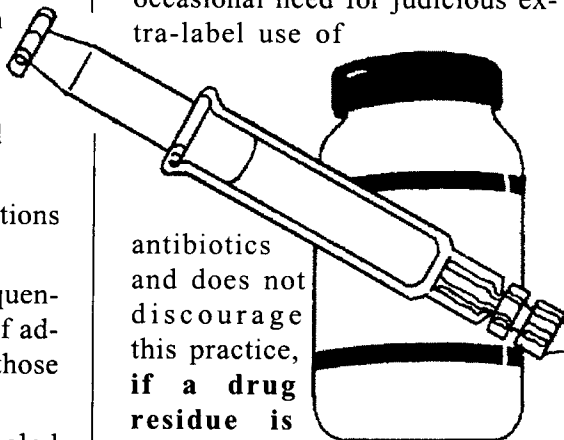
The withdrawal time for gentamicin could be 18 months or more.

cording to the US Food and Drug Administration (FDA), the withdrawal time could be 18 months or more regardless of its route of administration (intra-muscular, intra-mammary, or other) because gentamicin binds to bovine kidney tissue and is not readily excreted. Moreover, there is no program or test available for producers to test milk or meat for gentamicin residues prior to slaughter. Considering the current information, it is

difficult for a veterinarian to specify a withdrawal time for gentamicin of less than 18 months.

Has the FDA taken a position on gentamicin use?

While the FDA recognizes the occasional need for judicious extra-label use of



antibiotics and does not discourage this practice, **if a drug residue is present in a food animal at slaughter, FDA will hold responsible anyone involved in the drug's administration**, including both the veterinarian and the producer. The FDA particularly wants bovine veterinarians to recognize their responsibilities, if they choose to use gentamicin in dairy and beef cattle.

Therefore, bovine practitioners and producers should be on notice. The FDA may subject veterinarians to regulatory action for any violation of drug residue levels in human food resulting from their prescriptions, recommendations, or treatments contrary to label instructions. Similarly, **anyone in the producing or marketing chain, including farmers, who can be shown to have caused illegal drug residues through extra-label use of drugs in food-producing animals, can also be subject to regulatory action. The same applies to the livestock dealers hauling these animals for slaughter.**

What does the American Veterinary Medical Association (AVMA) have to say about gentamicin in cattle?

Although the AVMA currently has no formal position statement on gentamicin, in a major policy shift in June 1998, the AVMA Executive Board **decided to support a voluntary ban on the extra-label use in cattle of aminoglycoside antibiotics, including gentamicin**. Their proposed position statement would indicate **“that until further scientific information becomes available, aminoglycoside antibiotics should not be used in cattle, except as specifically approved by the FDA.”**

Furthermore, if a veterinarian indiscriminately uses gentamicin without regard to the animal's potential slaughter for human consumption, and a residue violation is subsequently found, the individual State Boards of Veterinary Pharmaceuticals or Examiners may have the power to revoke that veterinarian's license. This extreme measure has already been taken in some states.

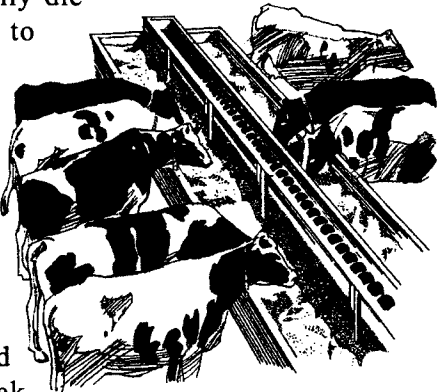
How does this information affect producers in New Jersey?

Gentamicin is most commonly used in very young animals. If your veterinarian chooses to use this antibiotic in a young animal, he or she must still recognize the responsibilities associated with this extra-label use and be acutely aware of its 18-month -- or longer -- withdrawal

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BSE and the Mammalian Protein Feeding Ban: To Feed or Not To Feed

Bovine spongiform encephalopathy (BSE), a progressive, degenerative, always fatal brain disease, was first identified in the United Kingdom in 1986 and has since been found in domestic cattle in Ireland, France, Portugal and Switzerland but **not** in the United States. Animals usually become sick between the ages of three and five years and, once signs of infection develop, they usually die within two weeks to six months. The only way to confirm the disease is through microscopic examination of the brain after the animal's death.



It is theorized that the BSE outbreak in the United Kingdom was the result of feeding ruminant protein products to other ruminants, along with concurrent changes in the rendering process. **If a calf ingests just 0.1 gram of BSE-infected brain tissue once, that is enough to cause BSE disease in that animal 3 to 4 years later.**

To prevent a BSE outbreak in the United States, the federal government enacted the federal Mammalian Protein Feeding Ban (21 CFR 589.2000). Under this law, the US Food and Drug Administration (FDA) issued a regulation that prohibits feeding

protein derived from the tissues of mammals to ruminant animals including cattle, sheep, goats and deer. The ban took effect in 1997.

What feed material is prohibited to ruminants?

The ban includes feed ingredients, or feeds containing ingredients, that are derived from mammals and supply protein that is considered prohibited material unless it is specifically exempted.

What is exempted?

Exemptions from the BSE rule, i.e., "non-prohibited materials" include:

- blood and blood products
- milk and milk products
- pure pork or pure horse protein products
- inspected meat products, such as plate waste, which has been cooked and offered for human consumption and further heat-processed for animal feed
- gelatin
- non-mammalian protein products including poultry, fish, and vegetable
- products which are not protein or tissue, such as grease, tallow, fat, oil, amino acids, and dicalcium phosphate

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Gentamicin... *continued from page 5*

time. New Jersey had three gentamicin tissue residue violations in dairy cattle in 1999 and apparently gentamicin residues are being found more often nationwide as well. In 1997, nearly 12% of national drug residue violations were attributed to gentamicin but in 1999 that figure rose to almost 38%. **Since there is a zero tolerance level for gentamicin in dairy or beef cattle, if you use this drug, you run a tremendous risk of being cited by FDA for antibiotic tissue residues.**

Remember that producing a safe food product for consumers must be our primary goal. Practicing good husbandry and herd management principles, including proper sanitation, good nutrition, manure management, and decreased stress, can all lower the likelihood of disease and significantly decrease the use of all classes of antibiotics. **Avoid the use of gentamicin in cattle destined for human food use unless you can guarantee that all conditions and responsibilities required by AMDUCA can be met.**

For further information on drug residues and gentamicin, contact Debbie Cera of the Center for Veterinary Medicine Compliance (CVM) at (301) 827-0181. To see the complete AMDUCA regulation, go to www.fda.gov and look for AMDUCA under the Federal Register. Although there is no gentamicin-specific website available at this time, you can get further information about extra-label drug use and AMDUCA from Dick Arkin at FDA/CVM, (301) 827-0141 or Dr. Elizabeth Curry-Galvin, Assistant Director, Division of Scientific Activities, (800) 248-2862, ext 290 or via e-mail at egalvin@avma.org.

What The FDA Feeding Ban Means...

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To Renderers That Do Not Separate:

Renderers, feed manufacturers, and feed distributors that **do not** separate prohibited and non-prohibited materials, or firms that handle **only** prohibited materials, **must** label all outgoing product that may contain **prohibited** material with the following statement: "**Do not feed to cattle or other ruminants.**"

In addition, firms must maintain, for a minimum of one year, all records sufficient to track materials throughout their receipt, processing and distribution and make the records available for inspection and copying by the FDA.

To Renderers That Do Separate:

Renderers that **do** separate prohibited materials from non-prohibited materials have three additional requirements:

- They must obtain non-prohibited material, including pure pork and pure horse products, only from single-species slaughter facilities.
- They must take steps to avoid co-mingling or cross-contamination of prohibited and non-prohibited materials.
- They must maintain written procedures that document the measures adopted to prevent co-mingling or cross-contamination.

Feed manufacturers and distributors must also adhere to the first two additional requirements above.

To Feeders With On-Farm Mixing Operations:

Feeders of ruminant animals with on-farm feed mixing operations must **not** mix feed for ruminants using feed ingredients labeled with the caution statement "**Do not feed to cattle or other ruminants.**" If you mix feed for both ruminant and non-ruminant animals, **and** you use **prohibited material** for the non-

ruminant animal feed, you must:

- Use separation or clean-out procedures to avoid co-mingling and cross-contamination.
- Maintain written procedures that you develop and implement to prevent co-mingling and cross-contamination.
- Keep records sufficient to track the **prohibited** materials through their receipt, processing, and distribution, and make them available for inspection and copying.

If you mix feed for **non-ruminant animals** using **prohibited material**, and it is sent out, it **MUST** be labeled with the cautionary statement, "**Do not feed to cattle or other ruminants,**" and you must maintain records of the delivery.

If you also purchase complete feed, maintain copies of all purchase invoices and labeling for all feed received that contains animal protein products. Keep invoices and labeling available for inspection and copying and maintain all required records for at least one year.

To Feeders Without On-Farm Mixing Operations:

Feeders of ruminant animals **without** on-farm mixing operations must **not** feed products labeled with the caution statement, "**Do not feed to cattle or other ruminants**" to ruminant animals. Keep copies of all purchase invoices and labels for all feeds received that contain animal protein available for FDA inspection and copying. Maintain these records for a minimum of one year.

The Federal Mammalian Protein Feeding Ban rule applies to pet food also **IF** the pet food is diverted from retail sale (i.e., if the packaging is damaged, or an expiration date passes) **AND** is used to feed ruminants.

Easy-to-understand compliance guides are available from the FDA on the Internet at www.fda.gov/cvm.

To prevent a BSE outbreak in the U.S., the FDA issued a regulation that prohibits feeding protein derived from the tissues of mammals to ruminant animals. The ban took effect in 1997.

New Jersey's Johne's Program

New Jersey's voluntary Johne's disease program has been in place for several years. Because of its proven track record, the program attracts more interested producers every year. When you join the program, NJDA will do the Johne's testing for you and help you develop your own Johne's herd management program in cooperation with your Extension agent and, if you wish, your veterinarian. All results are kept strictly confidential.

There is no charge for the visits to your farm and the work we do with you, but a nominal fee of \$2.50/test/head is charged for the ELISA blood test to cover the cost of the laboratory test kits. Fecal tests done on ELISA-positive cows are free, but any additional fecals also cost \$2.50/test.

For more information on the program, contact NJDA's Division of Animal Health at (609) 292-3965; Dr. Mike Westendorf at Rutgers Cooperative Extension, (732) 932-9408; or one of the following Extension agents to schedule an appointment.

EXTENSION AGENTS

Everett Chamberlain
(908) 475-6503

Dave Lee
(609) 769-0090

Bob Mickel
(908) 788-1339

Dan Wunderlich
(973) 579-0985

Call now to get on track!

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Testing for Johne's Disease... *continued from page 3*

The second test is a blood test, called an ELISA test. Its accuracy increases as the animal approaches a more advanced stage of the disease and can therefore result in a false negative in the early, subclinical stages.

It is recommended that yearly whole-herd tests be done, with fecal testing of any ELISA-positive animals and any high-risk adults. A history of annual tests will give you a clearer picture of the amount of Johne's in

your herd and, as you implement management changes, show a decrease in infected animals. Herds with known cases of Johne's should be tested more frequently, usually two or three times a year.

For more information on Johne's disease in American dairy operations, visit the dairy location at www.aphis.usda.gov/ or the Johne's Information Center at www.vetmed.wisc.edu/pbs/johnes/index.html.

Welcome... *continued from front page*

Rutgers University and a group of ag agents have formed a statewide forage/commodities purchasing group. By forming this group, all will be better able to weather the economic impact the drought has placed on us. It is important to take time NOW to plan your winter/spring feeding needs. Contact your ag agent or Dr. Westendorf for the work sheet and additional information on the purchasing group.

There is also important information about nitrates and other drought-related topics on both the Rutgers website (www.rce.rutgers.edu) and the department's website (www.state.nj.us/agriculture).