

Regulatory Services News

Vol. 59, No. 2

Feed - Fertilizer - Milk - Seed - Seed Testing - Soil Testing

Summer 2016

Director's Digest

As discussed in previous issues, the origin of Regulatory Services dates back 130 years. The law to regulate fertilizer was implemented on April 13, 1886 and was to be carried out by the UK Agriculture Experiment Station. Laws were later added for the regulation of the feed, seed milk, pesticide, and nursery industries. These were also to be enforced by the experiment station but might be carried out by different departments. The actual Division of Regulatory Services was established 50 years ago. The following notation is from the 1967 Regulatory Bulletin:

“On July 15, 1966 the Executive Committee of the Board of Trustees of the University of Kentucky established a Division of Regulatory Services to administer Regulatory Agencies of the Kentucky Agricultural Experiment Station. These seven agencies are as follows: Creamery License Section, Feed Control Section, Fertilizer Control Section, Pesticides Control Section, Seed Control Section, Soil Testing Section and Nursery License and Inspection Section. By consolidating all these sections under one division, the same inspectors can work on all commodities while in an area. It will cut down greatly on duplication of travel and make for a much more efficient operation.”

Putting these functions all in the same division allowed the same inspectors to sample feed, fertilizer and seed. Previously, seed work was done by the Department of Entomology and Botany. Pesticide work was later transferred to the Kentucky Department of Agriculture and Nursery Inspection is done by the Department of Horticulture. Feed, fertilizer, seed and milk work remain in the Division of Regulatory Services as well as soil testing.

A lot has changed in fifty years and this is a good opportunity to reflect on some of those changes. The U. S. population was a little under 200 million in 1966 and is estimated at almost 323 million in 2016. Farmers as a percentage of the workforce has dropped from around 8% in the sixties to less than 2% today and farm population has dropped from over 15 million in 1960 to under 3 million today. As you might expect this drop in farm population has led to increased farm size as shown in the graph on page 3:

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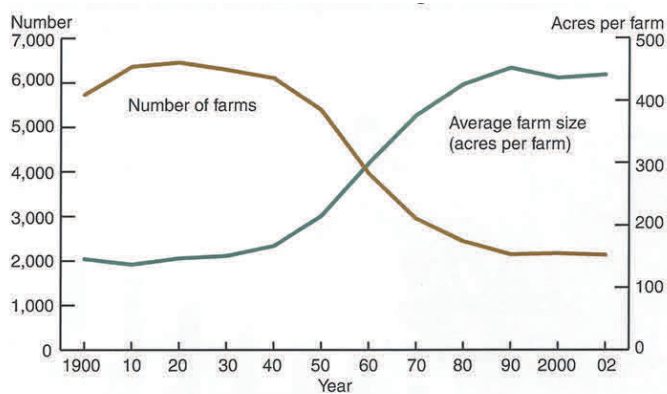
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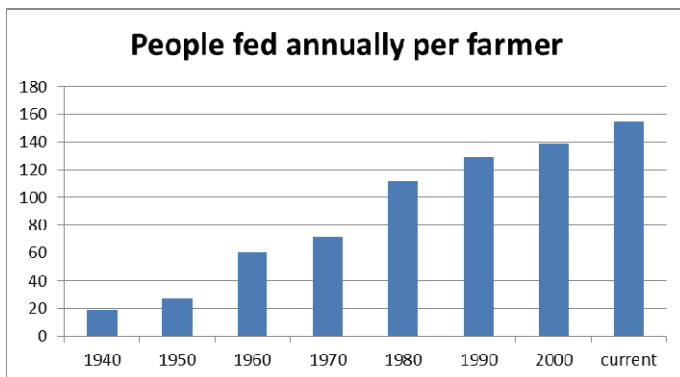
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Source: Compiled by Economic Research Service, USDA, using data from *Census of Agriculture*, *Census of Population*, and *Census of the United States*.

In addition to the increase in farm size there has been a big increase in productivity as shown in the table below:



The number of people fed per farmer has increased from 61 in 1960 to 155 today. Many factors have contributed to this increase in productivity. Better genetics, better nutrition, better equipment and better technology have been big factors. This has all been done while becoming better stewards of the environment. Soil erosion has been greatly reduced since the 1960's. Dairy farmers have reduced the amount of resources needed and amount of waste being produced. Today's cows give more milk (national average of 24 lbs/cow/day in 1966 vs 66 lbs/day average now) but have decreased their carbon footprint by 41% per pound of milk produced. The beef industry has also reduced their use of resources by using 69.9 percent of beef cattle, 81.4 percent of feedstuffs, 87.9 percent of water and only 67 percent of the land to produce one billion kilograms of beef from 1977 to 2007. Certainly, efficiencies must continue to improve to feed a grow-

ing population.

The industries we regulate have also changed over the last fifty years. You would think that with a decrease in farm numbers there might be a decrease in agribusinesses but that doesn't appear to be the case. In 1966 we inspected fertilizer from 71 different companies and last year had samples from 247 companies. In seed we went from 199 companies in 1966 to 246 last year. In feed we went from 339 in 1966 to 519 last year. I don't have the numbers to back this up but I think there may be less truly agricultural businesses in Kentucky but we now sample more products produced in other states and what has really grown is the urban market for seed and fertilizer plus the market for pet food and treats. In 1966 there were no Walgreens, Lowe's or Home Depot's in Kentucky and now our inspectors spend considerable time sampling seed and fertilizer at these locations. The growth of pet boutique stores has been phenomenal over the last 10 years and these were also not around in the 1960's. We had not even heard of the internet in 1966 and now we have to try and figure out how to deal with internet sales of agricultural products.

Other changes are a little more disturbing. The average age of farmers has increased from 30.3 years in 1960 to almost 60 years today. Getting younger people interested in farming and providing them the finances to do so will continue to be a challenge. This is further complicated by the decrease in farm population. This means more people are further removed from farming and can't relate to what we do. This makes telling our story in a positive light so essential. The students in our Colleges of Agriculture are considerably more urban than they were 50 years ago but I am impressed with the enthusiasm I see from the ones here at UK. I hope the agricultural industry will do its part to keep them engaged in Agriculture.

The last fifty years have seen tremendous change in agriculture and it seems to be picking up from both a technology and regulatory standpoint. Genetically modified organisms, hemp, veterinary feed

directive, and the food safety and modernization act are just some of the hot topics we are currently dealing with. We are proud of our ability at the Division of Regulatory Services to adapt to changes and work with the agribusiness community to maintain a level playing field and protect the consumers of agricultural products. We look forward to facing what the next 50 years may bring.

*Dr. Darrell Johnson,
Executive Director*

Proper Seed Storage

Man has been storing seed for hundreds of years. From prehistoric times, man has learned to preserve seed in small quantities for future use. As time went on, and agriculture developed, he has gained knowledge and experience in seed storage.

Today seed producers, wholesalers, retailers and farmers alike, all utilize some method of seed storage. They have learned that moisture and temperature play a vital part in maintaining viability of seed. Using this information, they determine the best conditions for seed storage. Although, the most important reason for storing seed is so there will be seed to plant the following year, it is advantageous to be able to store seed for a longer period of time. This holds especially true for those facilities that acquire and preserve seed for genetic resources.

Depending on the seed kind, some seed store longer and in better condition than others. A seed is made up of the embryo, endosperm and other food reserves, and is protected by the seed coat. For example, the embryo of corn (and other grains) is better protected than say, that of a soybean, because the food reserve for corn is in the endosperm, whereas in the soybean the food reserve is in the cotyledons, or true leaves which can be damaged somewhat easier. Other seed, such as grasses,

have structures which protect them from injury that may occur from birds and insects.

Seed physiology, maturation, dormancy (particular for seed kind), and vigor all affect seed storage. Seed can become damaged, beginning with the harvesting process. Harvested too soon, too late, too wet or too dry, can all have an effect on seed storage. Seed lots go through many processes including, drying, cleaning, grading, and transportation. Although not all kinds of seed go through all of the same processes, these will also have an effect on storage.

It is important to harvest relatively dry, mature seed or dry the seed to a moisture level appropriate to the seed kind. This will increase the longevity and viability of the seed lot and lessen the effects of mechanical damage when cleaning and processing the seed. Lessening mechanical damage will also lessen the chances of fungal attack. Physically damaged seed does not store as well as undamaged seed.

Seed moisture is probably the most important factor when considering seed storage. If the moisture content is too high, then damage could occur before the proper moisture content is reached or damaged during the drying process. Also, if the seed has been exposed to fungi, such as head scab in wheat or phomopsis in soybeans, the high seed moisture in storage can increase disease problems. On the other hand, if seed moisture is too low, then damage can occur from handling the seed when cleaning and processing. Once the moisture of the seed lot has defined, and cleaning process completed, then the seed is readied for storage, (if that is the intended purpose).

Both the temperature and seed moisture can be controlled, to some degree, to enhance the length of time for storage. So when storing seed, it is to the advantage to have a facility where these conditions can be controlled. The lower the humidity, the less chance that you will have problems with fungi and seed deterioration. Also, the lower the temperature, the less chance will you have with

Seed Storage, continued

the seed lot overheating and damaging the seed. A good rule of thumb is if the humidity level (%) and the temperature (F°) combined equal 100, then the chances are that your seed will store well. Avoid storing seed in extreme temperatures and moisture, such as poorly constructed outdoor warehouses, where water, rodents and insects can enter and the temperatures cannot be controlled to a certain level. Sub-freezing temperatures can possibly damage seed but extremely high temperatures are worse. The combination of high heat and high moisture is a death sentence for seed.

Storage on the farm is usually for a short period of time. Seed is normally stored in bags or bins and rarely is it kept from one harvest to the next planting season. If it is held over, it is better to store in a wooden structure versus metal, as the heat buildup is less. Elevator storage usually handles seed during and immediately after harvest. They will also normally have fanning and drying equipment to help reduce seed moisture content. Frequently they will have facilities for rodent and insect control. Seed processors store a wide range of seed and their facilities vary widely in construction type and size. They store processed and unprocessed seed and are kept separate from one another. Cleaned seed is normally stored in the container in which it will be shipped and sometimes sold. Most retail agricultural markets do not have specific storage facilities for seed. However, if the seed is kept from being roughly handled, protected from vermin, and can avoid extreme temperatures and moisture, then seed viability can be sustained long enough to permit marketing. Seed laboratories usually have a designated storage room where the humidity and temperature can be controlled. Germ plasma preservation centers have the best possible storage conditions possible.

This is just a brief look at how important seed storage is and what steps can be taken to improve conditions, so seed viability can be extended.

***Tina Tillery,
Seed Lab Supervisor***

Animal Feed and Pet Food Sampling Update

The latest feed report, “2015 Commercial Feeds in Kentucky”, was mailed in early April and is available on our website. This annual report reviews all activities of our feed program including feed mill inspections, feed tonnage reported, and industry updates. But the listing of feed samples analyzed by our lab by company is the heart of the report.

Our Regulatory Services inspectors, under the authority of our Kentucky Feed Law (KRS 250.581), collect around 3200 samples each year of commercial products offered for sale as feed or for mixing in feed. To be included in the feed report summary, the samples must be considered official (collected using recognized sampling methods and properly documented) and have label guarantees. In 2015, the report included 3056 samples from 526 different manufacturers or guarantors.

For each guarantor, the report includes the total samples collected and total number of guaranteed tests. In 2015, 75% of samples analyzed passed all guarantees tested and 95% of all tests passed. Our goal for this compliance testing is to sample products that represent what is available in the market in proportion to the distribution of these products. Kentucky law and regulation require that label guarantees represent to the purchaser what is in the product and compliance testing is how our division enforces the law. When products sampled do not meet all their guarantees, the manufacturer or guarantor is asked to investigate and report back to the Feed Director. The division may also issue a withdrawal from distribution if the health of animals or humans could be impacted by the violation.

Livestock feeds and ingredients make up the majority of products sampled but pet food sampling continues to grow and reached 41% of samples in 2015. The pet food category includes complete dog and cat foods, pet treats, and specialty products (all other pets besides livestock, dogs, and cats). Complete dog and cat foods are the primary focus but we are seeing more pet treats in more locations and thus, more samples. Refrigerated or frozen foods are also gaining ground in the market

and we do sample a selection of these each year.

In September 2015, our lab implemented a new software program and a new reporting system for lab results. One of the benefits of this software upgrade is the ability to provide more lab results than were previously available. Lab reports on samples now include not only the guaranteed mineral analyses but also non-guaranteed mineral results. These are provided to producers, distributors, and manufacturers for informational purposes only.

In 2015, our lab analyzed over 200 samples that are not included in the feed report. These included lab check samples, research samples from the University of Kentucky, and samples provided by producers or county extension agents needing a feed analysis to help answer a question or complaint. The lab is also available to use sample analysis to assist a Kentucky manufacturer in dealing with processing challenges.

In an article in this newsletter a few years ago, I talked about the development of risk-based sampling models to better address the issue of feed contaminants. To date, our contaminant testing has mostly involved investigating complaints that may be related to animal feed or pet food. In addition to what we expect to find in the samples, we may also look for mycotoxins, heavy metals, and physical contaminants. In 2016, we will implement a risk-based sampling plan that will expand our contaminant testing to drug residues in equine feeds. Compliance sampling and testing will continue to be our main focus but risk-based contaminant testing helps protect both animals and humans.

*Dr. Alan Harrison,
Director of Feed and Milk Programs*

Calcium, Sulfur, pH, and Soil Amendments

Confusion often arises on how soil pH can be changed with the application of soil amendments containing calcium or sulfur. Agricultural limestone has an abundance of calcium and is applied to soil to increase pH. Elemental sulfur is a soil amendment that can be applied to soil to decrease soil pH. Un-

derstanding how these amendments affect soil pH is important for realizing that the broad statements “calcium increases soil pH” and “sulfur decreases soil pH” are not accurate.

Soil pH is a measure of the concentration of hydrogen ions in soil. Acid soils have a low soil pH and a high concentration of hydrogen ions. Alkaline soils have a high soil pH and a low concentration of hydrogen ions. To increase soil pH, concentration of hydrogen ions has to be decreased. To decrease soil pH, concentration of hydrogen ions has to be increased.

Agricultural limestone contains calcium carbonate. The carbonate neutralizes and removes hydrogen ions, thus decreasing hydrogen ion concentration and increasing soil pH. Calcium is just a component of the mineral that contains the active ingredient, carbonate, and is an innocent bystander to the important reaction that increases pH. Calcium does not directly affect soil pH. Just because a product contains calcium does not mean it would be effective in increasing soil pH. The calcium would have to be accompanying an active ingredient that removes hydrogen ions.

The form of sulfur dictates whether soil pH will decrease or not. Elemental sulfur is oxidized by soil bacteria to form sulfuric acid. Sulfuric acid releases hydrogen ions and sulfate. The supply of hydrogen ions causes a decrease in soil pH. Sulfate does not affect soil pH. Rather, sulfate is just a product of elemental sulfur oxidation.

Applying soil amendments containing calcium or sulfate does not necessarily guarantee an effect of increasing or decreasing soil pH. Calcium has to be associated with an active ingredient to decrease hydrogen ions. Sulfur has to be present as elemental S to form hydrogen ions upon bacterial oxidation. Gypsum contains the mineral, calcium sulfate, and is a common soil amendment. Gypsum does not affect pH because there are no active ingredients to remove hydrogen ions or possible reactions to create hydrogen ions. Gypsum is used to apply calcium which can improve soil structure in some soils which is unrelated to changing pH.

Ca, S, pH and soil amendments, continued

The application rate of active ingredient being added to increase soil pH or elemental S to reduce soil pH also has to be considered. There may be small quantities of carbonate or elemental S in a product but the amount applied to soil may not be large enough to cause any pH change. Comparisons can be made to the normal recommendations of agricultural limestone or elemental S additions to affect soil pH to determine if recommended application rates of various soil amendments could have the same result.

*Dr. Frank Sikora,
Director of Soils Program and Laboratories*

Seed Law Changes to go into Effect July 2016

During the 2016 Legislative Session some needed additions and updates to the Kentucky Seed Law were passed by both houses and will become effective in July 2016. At this time we do not have an exact date as this has not been determined at the time of printing. Below are highlights of the changes. We will also update the regulations in the next few months to align the law changes with the regulations.

- A NEW SECTION OF KRS 250.021 TO 250.111 IS CREATED TO READ AS FOLLOWS:
 - (1) No city, county, or other political subdivision of the Commonwealth shall adopt or continue in effect any ordinance, resolution, rule, or regulation regarding the registration, packaging, labeling, sale, storage, distribution, use, application, or propagation of seeds as regulated pursuant to KRS 250.021 to 250.111. Any local legislation in violation of this section is void and unenforceable.
 - (2) Nothing in this section shall be construed to:
 - (a) Abrogate the planning and zoning authority granted local government pursuant to KRS Chapter 100; or
 - (b) Preempt or limit remedies available under common law or statutes.

- THE ADDITION OF TWO DEFINITIONS:
 - "Blend" means seed consisting of more than one (1) variety of a kind, each in excess of five percent (5%) by weight of the whole;
 - "Brand" means a word, name, symbol, number, or design used to identify seed of one (1) person to distinguish it from seed of another person;
- THE ADDITION OF "VARIETY NOT STATED"
 - If the variety of those kinds generally labeled as to variety as designated in the administrative regulations promulgated under KRS 250.021 to 250.111 is not stated, the label shall show the kind and the words "Variety Not Stated" or "VNS."
- THE ADDITION OF NEW SUBSECTION FOR COOL SEASON GRASSES:
 - (b) For cool season grasses, including but not limited to Kentucky bluegrass, red fescue, chewings fescue, hard fescue, tall fescue, perennial ryegrass, intermediate ryegrass, annual ryegrass, colonial bentgrass, creeping bentgrass, and mixtures of the grasses:
 1. For single kinds, the name of the kind and variety shall be listed. If the variety of those kinds generally labeled as to variety as designated in the administrative regulations promulgated under KRS 250.021 to 250.111 is not known, the label shall show the kind and the words "Variety Unknown." If the variety of those kinds generally labeled as to variety as designated in the administrative regulations promulgated under KRS 250.021 to 250.111 is not stated, the label shall show the name and the kind with the words "Variety Not Stated" or "VNS";
 2. For mixtures:
 - a. The word "mix," "mixed," "mixture," or "blend" shall be stated with the name of the mixture;

Seed law changes, continued

- b. The heading "Pure Seed," "Germination," or "Germ" shall be used in the proper places; and
- c. The commonly accepted name of the kind, or kind and variety, of each agricultural seed component in excess of five percent (5%) of the whole, and the percentage by weight of pure seed shall be written in order of its predominance and in columnar form. If the variety of those kinds generally labeled as to variety as designated in the administrative regulations promulgated under KRS 250.021 to 250.111 is not stated, the label shall show the name of the kind and the word "Variety Not Stated;"
- 3. The percentage by weight of crop seed;
- 4. The percentage by weight of inert matter;
- 5. The percentage by weight of all weed seeds;
- 6. The totality of pure seed, pure seed mix, crop seed, inert matter, and weed seed described in subparagraphs 1., 2., 3., 4., and 5. of this paragraph shall total one hundred percent (100%);
- 7. The name and rate of occurrence per pound of each kind of restricted noxious weed seed present;
- 8. For each cool season grass seed named under subparagraphs 1. and 2. of this paragraph:
 - a. The percentage of germination, exclusive of hard seed;
 - b. The percentage of hard seed, if present;
 - c. The calendar month and year the test was completed to determine such percentages; and
 - d. The test to determine the percentage of germination shall be completed within a fifteen (15) month period immediately prior to sale, exposure for sale, or offering for sale or transportation, exclusive of the calendar month in which the test was completed ;and

- 9. The name and address of the person who labeled the seed;

- QUARTERLY INSPECTION FEE CHANGED TO SEMI-ANNUAL
(Potential starting date of January 2017, determined by regulation changes)

Each person who labels agricultural seed in accordance with KRS 250.041 shall obtain a labeling permit from the director and pay a semiannual~~quarterly~~ inspection fee unless labels attached to the seed containers were issued by the Kentucky Seed Improvement Association, or purchased from the director;

- THE USE OF RELABELING STICKERS FOR GERMINATION:

Relabeling stickers must have both the calendar month and the year the germination test was completed and the lot number that matches the existing original lot number.

*Stephen McMurry,
Director of Fertilizer and Seed Programs*

Veterinary Feed Directive Update

The Veterinary Feed Directive has been discussed in previous issues of this publication but the Food and Drug Administration has released the information on the next two pages which is very useful. Page 9 shows the feed additive drugs that will transition to VFD status as of January 1, 2017. Page 10 shows the water soluble drugs that will switch from over the counter to prescription status on that same date.

These tables show the trade names of the products involved which is more recognizable to many. For more information on the Veterinary Feed Directive, please go to our website and click on the "Veterinary Feed Directive" link located on the front page.

*Dr. Darrell Johnson,
Executive Director*

Drugs Transitioning from Over-the-Counter (OTC) to Veterinary Feed Directive (VFD) Status

Upon completion of their voluntary transition from OTC to VFD, all feed uses of the following drugs, alone and in a combination, will require a VFD as of January 1, 2017, except in cases where a sponsor chooses to voluntarily withdraw the drug application:

Drugs Transitioning From OTC to VFD Status

Established drug name	Examples of proprietary drug name(s) [§]
chlortetracycline (CTC)	Aureomycin, CLTC, CTC, Chloratet, Chlorachel, ChlorMax, Chlortetracycline, Deracin, Inchlor, Pennchlor, Pfichlor
chlortetracycline/sulfamethazine*	Aureo S, Aureomix S, Pennchlor S
chlortetracycline/sulfamethazine/penicillin*	Aureomix 500, Chlorachel/Pfchlor SP, Pennchlor SP, ChlorMax SP
hygromycin B	Hygromix
lincomycin	Lincomix
oxytetracycline (OTC)	TM, OXTC, Oxytetracycline, Pennox, Terramycin
oxytetracycline/neomycin*	Neo-Oxy, Neo-Terramycin
penicillin [†]	Penicillin, Penicillin G Procaine
sulfadimethoxine/ormetoprim*	Rofenaid, Romet
tylosin	Tylan, Tylosin, Tylovet
tylosin/sulfamethazine*	Tylan Sulfa G, Tylan Plus Sulfa G, Tylosin Plus Sulfamethazine
virginiamycin	Stafac, Virginiamycin, V-Max

Note: apramycin, erythromycin, neomycin (alone), oleandomycin[†], sulfamerazine, and sulfaquinolaxline are also approved for use in feed and are expected to transition to VFD status, but are not marketed at this time. If they return to the market after January 1, 2017, they will require a VFD.

[§]Type A medicated articles used to manufacture medicated feed, all products may not be marketed at this time

*Fixed-ratio, combination drug

[†]Currently only approved for production uses

Current VFD Drugs

Established drug name	Proprietary drug name(s) [§]
avilamycin	Kavault
florfenicol	Aquaflor, Nuflor
tilmicosin	Pulmotil, Tilmovet

[§]Type A medicated articles used to manufacture medicated feed

This information is up-to-date as of January 19, 2016. As the industry transitions, CVM anticipates additional changes during the coming months to this information. Please check the link below for the most recent updates:

<http://www.fda.gov/AnimalVeterinary/DevelopmentApprovalProcess/ucm071807.htm>

Drugs Transitioning from Over-the-Counter (OTC) to Prescription (Rx) Status

Upon completion of their voluntary transition from OTC to Rx, all uses of the following drugs will require a prescription from a veterinarian as of January 1, 2017, except in cases where a sponsor chooses to voluntarily withdraw the drug application:

Water Soluble Drugs Transitioning From OTC to Rx Status

Established drug name	Examples of proprietary drug name(s)
chlortetracycline	Aureomycin, Aureomycyn, Chlora-Cycline, Chloronex, Chlortetracycline, Chlortetracycline Bisulfate, Chlortet-Soluble-O, CTC, Fermycin, Pennchlor
erythromycin	Gallimycin
gentamicin	Garacin, Gen-Gard, GentaMed, Gentocin, Gentoral
lincomycin	Linco, Lincomed, Lincomix, Lincomycin, Lincomycin Hydrochloride, Lincosol, Linxmed-SP
lincomycin/spectinomycin*	Lincomycin S, Lincomycin-Spectinomycin, L-S, SpecLinx
neomycin	Biosol Liquid, Neo, Neomed, Neomix, Neomycin, Neomycin Liquid, Neomycin Sulfate, Neo-Sol, Neosol, Neosol-Oral, Neovet
oxytetracycline	Agrimycin, Citratet, Medamycin, Oxymarine, Oxymycin, Oxy-Sol, Oxytet, Oxytetracycline, Oxytetracycline HCL, Oxy WS, Pennox, Terramycin, Terra-Vet, Tetravet-CA, Tetroxy, Tetroxy Aquatic, Tetroxy HCA
penicillin	Han-Pen, Penaqua Sol-G, Penicillin G Potassium, R-Pen, Solu-Pen
spectinomycin	Spectam
sulfadimethoxine	Agribon, Albon, Di-Methox, SDM, Sulfabiotic, Sulfadimethoxine, Sulfadived, Sulfamed-G, Sulforal, Sulfasol
sulfamethazine	SMZ-Med, Sulfa, Sulmet
sulfaquinoxaline	S.Q. Solution, Sulfa-Nox, Sulfaquinoxaline Sodium, Sulfaquinoxaline Solubilized, Sul-Q-Nox, Sulquin
tetracycline	Duramycin, Polyotic, Solu/Tet, Solu-Tet, Supercycline, Terra-Vet, Tet, Tetra-Bac, Tetracycline, Tetracycline Hydrochloride, Tetramed, Tetra-Sal, Tetrasol, Tet-Sol, TC Vet

Note: apramycin, carbomycin/oxytetracycline*, chlortetracycline/sulfamethazine*, streptomycin, sulfachloropyrazine, sulfachlorpyridazine, and sulfamerazine/sulfamethazine/sulfaquinoxaline* are expected to transition to Rx status, but are not marketed at this time. If they return to the market after January 1, 2017, they will require a prescription from a veterinarian.

*Fixed-ratio, combination drug

Current Rx Water Soluble Drugs

Established drug name	Examples of proprietary drug names
tylosin	Tylan, Tylomed, Tylosin, Tylosin Tartrate, Tylovet

This information is up-to-date as of January 19, 2016. As the industry transitions, CVM anticipates additional changes during the coming months to this information. Please check the link below for the most recent updates: <http://www.fda.gov/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/JudiciousUseofAntimicrobials/default.htm>

DIVISION OF REGULATORY SERVICES GOLDEN ANNIVERSARY—JULY 2016



Regulatory Services staff pictured in front of Scovell Hall where most regulatory functions were performed from the early 1900's. This picture was taken around 1980.



The Poundstone Building (near Commonwealth Stadium) where we have been since 1990.

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