USDA Extends Deadline for ARC/PLC

A one-time extension will be provided to producers for the new safety-net programs established by the 2014 Farm Bill. These programs are known as Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC). The final day to update yield history and/or reallocate base acres has been extended one additional month, from February 27, 2015 to **March 31, 2015**. The final day for farm owners and producers to choose ARC or PLC coverage remains March 31, 2015.

"This is an important decision for producers because these programs provide financial protection against unexpected changes in the market-place. Producers are working to make the best decision they can and we're working to ensure that they've got the time, the information and the opportunities to have those final conversations, review their data, and to visit the Farm Service Agency to make those decisions," said Vilsack.

If no changes are made to yield history or base acres by March 31, 2015, the farm's current yield and base acres will be used. A program choice of ARC or PLC coverage also must be made by March 31, 2015, or there will be no 2014 payments for the farm and the farm will default to PLC coverage through the 2018 crop year.

Source: USDA Press Release No. 0051.15

LGM Sign-Up: March 27

Funding for the Dairy Livestock Gross Margin (LGM) Program is readily available for the March sign-up period. The program is authorized in the lower 48 states, and with this widespread availability, funding will likely be quickly utilized. Dairy producers should give the LGM for dairy program consideration based on the extreme volatility in feed pricing alone. A policy could help to set a guaranteed margin and provide relief in an unstable environment.

If you feel that dairy LGM may benefit you, contact your crop insurance agent as soon as possible to get details for your farm and to take care of pre-enrollment issues. Sign-ups will begin on Friday, March 27 and continue through March 28, if funds are not exhausted.

MARCH 2015

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**PCR Testing for Mastitis Causing Organisms**

Polymerase Chain Reaction ("PCR") is an extremely useful process used all around the world in many different aspects – from crime scene investigations to our very own farms. The process of PCR was introduced by Mr. Kary Mullis in 1985. Think of PCR as genetic photocopying, where a single piece of genetic information in the form of DNA is replicated exponentially in a short period of time, resulting in millions of copies of the tiny segment of genes. This amplification process can provide multiple copies of a much needed piece of information that can then be used in multiple different types of testing. Therefore, PCR is a very useful tool for farmers who may need to test their animals for certain types of diseases or infections that may target specific areas or genes in the animals.

PCR involves 3 steps: denaturation, annealing, and primer extension. The denaturation process involves heating up the piece of DNA and Taq polymerase to around 95°C so the hydrogen bonds break and the DNA is rendered into 2 single strands. Then, the annealing step involves a slight cooling of the solution so that the specific polymerase primers can attach (anneal) to the templates of DNA to frame the segment of which you wish to make copies and form new DNA. Finally, in the primer elongation step Taq polymerase binds to the primers and begins to add DNA nucleotides to them, making the strand grow. However, you are not done here, for this would only provide 2 copies of the DNA which would not nearly suffice for any sort of testing. Therefore, the PCR process needs to be repeated about 30 times in order for the number of copies to grow exponentially and provide sufficient material for testing – this repeated process is called PCR cycling, and usually takes a few hours. A useful PCR technique is real-time PCR, where fluorescent markers on primers allow for detection in “real time” as opposed to detection at the end of the process as in regular end-point PCR. Particles fluoresce when broken polymerase, so the targeted sequence glows.

There are many benefits to PCR and it has proven to be a vital tool in today’s scientific community. The amplification of tiny bits of genetic material has opened many doors and has furthered our abilities to detect disease, solve crimes, and pinpoint specific genes by copying DNA from small samples like drops of blood or strands of hair and multiplying the amount of DNA in order to have enough to test or identify it. PCR is also good because the primers have specific targets on the DNA, so it can target specific genes of your choice. PCR is also cost effective and widely available.

However, there are also some negatives to PCR. PCR can be time-consuming due to the cycling, and the process is highly specific in regard to the temperatures and requirements necessary in order to complete the process. For example, if the temperature is too high during the annealing or extension phases, the copied DNA strands could unwind and foil the process. Since PCR is so sensitive and specific, any contamination could likely ruin the experiment as well. Also, PCR plateaus as the amount of replications exceed above 35, so as the enzyme and reagents are used up the amount of copies tapers and may not be as useful if the process continues after parts of the reaction are “used up.”

All in all, the process of copying small amounts of genetic material has proven to be a useful advance in science. It allows someone to replicate a targeted genetic sequence enough for testing, so it is very useful on farms and other locations where disease may be present and needs to be tested in order to prevent further infection. An issue on many farms is mastitis, an immune response to bacterial infection of the mammary gland and udder tissue. PCR can be used to detect mastitis by combining a milk sample and specifically designed primers which would bind to specific disease-causing pathogens. If the primers bind to the specific pathogenic DNA, it will replicate and results can later determine which pathogen is present in the milk sample. With PCR, specific disease-causing agents can be detected and then appropriate measures can be taken to help manage and prevent further infection.

PCR testing services are available through many labs nationwide. If you are interested in potentially using PCR testing to identify mastitis causing organisms on your farm, give the Salem County Extension Milk Quality Team a call at (856) 760-0090.
A workshop recently took place at the Rutgers Eco-Complex presented by Rutgers faculty and staff as well as US Forest Service personnel titled “Climate Change and Agriculture in New Jersey.” Overall, the consensus is that the climate is rapidly changing and that we must adapt to these changes in order to sustain the world’s ever-growing population (at a rate of 250,000 people per day).

### Temperature

Climate change has been taking place due to our history of burning fossil fuels with resulting greenhouse gases that have led to rising temperatures. The long term upward trend has been 2.7°F per 100 years. The warmest year on record was 2012 with 2014 being one of the coolest on record. Even with 2014 being coolest, it was still warmer than the historic average. Overall, winter has proven to have larger warming trends at a gain of 3.7°F per 100 years, whereas the increase in summer has been 2.4°F per 100 years. The warmest summers on record have occurred since 2005 and currently, the trend is showing that there will be more warm extremes, or days with temperatures about 90°F. An increase in nighttime temperatures is also expected as warming trends continue.

### Rainfall

As far as rainfall goes, the long term trend has shown that there has been an increase in overall rainfall at a rate of 2.5” per 100 years. Trends have shown that rainfall has been taking place in more extreme short term events which have led to the lengthening of dry spells.

### Sea Level

Sea level has been changing at an alarming level over the past few decades. Historically, sea levels have risen at a rate of 1.7mm(+/-3) per year, but in the past few decades, sea levels have risen at a rate of 3.2mm(+/-4) per year. These changes in sea level are due to the fact that more warm extremes are occurring along with fewer cold extremes and the frequency and lengthening of dry spells. As sea levels rise, the middles of continents will see the most increases in warming trends.

### What Does It All Mean?

As a dairy producer, you should be aware of these changes taking place in order to best manage your herd. With increasing temperatures, extra steps should be taken to ensure that your animals grow, breed and produce milk at a high level. Steps taken may include the addition of fans and misting systems to keep animals comfortable and housing structures ventilated. When building animal housing structures, orientation with regards to the sun should be considered. If/when temperatures increase, especially during nighttime hours, cooling systems should be run for longer periods of time for maximum effect.

Increased rainfall in the future, especially in short term events will be a point of concern when it comes to barnyard drainage and manure storage. If/when you are building a manure storage system, extreme storm events must be considered in the design so that the system can handle such a situation. If a manure storage system is currently in use, placing gutters on barns to redirect storm water away from the barnyard and from collecting in the manure storage system could be a viable option to address this potential future problem.

All in all, preparedness is key when it comes to change. It is important to be prepared so that you can provide for your animals and keep them safe. Now that the sun is shining and the air is warming, it is a good time to get out and inspect your current housing structures and their supportive systems; make sure your herd will be comfortable in the heat and safe in case of flood or major rainfall. This way, you can make the best out of the changing climate while maintaining a safe and comfortable facility for your animals.
**NJ Dairies & Secure Milk Supply (SMS)**

The staff at Rutgers Cooperative Extension of Salem County will be serving the New Jersey dairy industry as consultants to help with voluntary compliance for the Secure Milk Supply (SMS) Program.

The SMS program should not be taken lightly because if there were ever to be an outbreak of hoof-and-mouth disease (HMD), only farms meeting the requirements and receiving a pre event audit and certification from the NJDA state veterinarian will be eligible to continue selling milk.

If your farm is not pre-event certified and you are located within a restricted area, you will not be able to sell your milk!

If you would like to pursue a pre event certification or would like more information about what parameters must be met, please feel free to contact Dave Lee, Jasen Berkowitz or Kelly Steimle at (856) 769-0090.

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**Happy Spring!**

We are (hopefully) only a couple of weeks from spring. As we look forward to getting away from winter and into the spring and getting back out in the field, The Garden State Crop Insurance Education Team would like to wish you and your family a safe and productive spring. We are looking forward to seeing green and smelling freshly tilled soil and fresh cut hay just as much as you are!

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**Questions about crop insurance?** Call a crop insurance agent or our toll free information line 800-308-2449
Or visit us online at http://salem.rutgers.edu/cropinsurance

Dave Lee
Jasen Berkowitz
Kelly Steimle
Rachel Jeronimus

This newsletter is brought to you by the Garden State Crop Insurance Education Initiative, a partnership between the USDA Risk Management Agency, New Jersey Department of Agriculture and Rutgers Cooperative Extension of Salem County. For additional information about crop insurance, contact your crop insurance agent, locate a crop insurance agent at www.rma.usda.gov/tools/agent.html, visit our website http://salem.rutgers.edu/cropinsurance or call our toll free hotline 1-800-308-2449.

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