


## Maximize Profit Capture: Focus on Compliance

Developed and presented by:  
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Dairy Genetics InSight Meeting  
Thursday, March 21, 2019

image source: Google Images Photo Gallery

Good morning! And welcome to this month's Dairy InSight Meeting. For those I haven't had the opportunity to meet, I am Tina Kohlman, extension dairy and livestock agent for Fond du Lac County. This month we will be focusing on genetics with Extension Dairy Geneticist Dr. Kent Weigel.

However, first I would like to discuss compliance in reproductive programs. With all the genetic progress we have achieved within our dairy herds the last five, ten, or even 20 years, that progress could not be possible without compliance in a strong reproductive program.

Compliance allows us to capture and maximize profit on the farm in numerous ways!

## Reproductive Performance

- Function of certain management policies
- Cow condition
- Implementation



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With the three largest expenses of the dairy operation being:

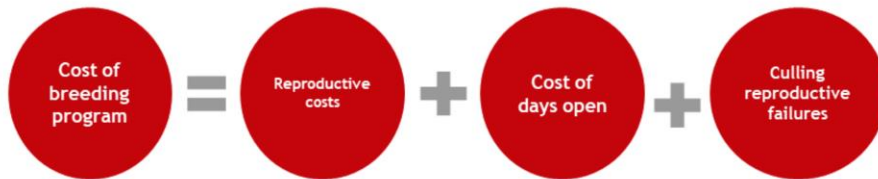
- feeding the lactating cows
- raising the dairy replacement herd, and
- labor,

a top reproductive program defines a successful dairy. Reproductive performance directly influences the calving rate, the number of dairy replacements raised and available for the milking herd, and milk yield due to an extended low productive lactation.

When we look at reproductive performance, there are three key factors one must consider:

- function of certain management practices,
- cow condition, and
- implementation.

## Defining Reproductive Cost



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What will it cost me to adopt a new or change an existing reproductive program?

The costs associated with a breeding program are easy to measure. Even though the return on the expenses may not be seen for months or years, the reproductive costs can be tracked and recorded, including semen, labor, synchronization protocols, pregnancy exams, and facilities.

As a herd increases in days open and culling due to reproductive failures, a dairy operation is losing out on opportunities from:

- Reduced lifetime milk production when the calving interval increases,
- Fewer dairy replacements,
- Increased reproductive culls,
- Higher reproductive costs due to more services per pregnancy,
- Increased veterinary bills due to herd checks and reproductive shots, and
- Higher incidence of over conditioned cows who remain in the milking herd longer without getting pregnant.

## Potential Financial Gains from Improved Reproduction

Measurement	Financial Losses
Calving Interval	>365 days = \$1 per day >395 days = \$30 + \$3 per day >395 days
Dry Period	\$3 per day for >60 days \$3 per day for <45 days
Services Conception	\$1 for each 0.1 service/conception over >1.5
Average Age at Freshening	\$30 per month for each month >24 months

Source: J.F. Keown & P.J. Kononoff, Dairy Cattle Reproductive Council



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It is hard to put a price on losses associated with reproductive issues on the farm. Reproductive costs do not accumulate like an incident of mastitis where we are treating the cow and keeping her milk out of the tank due to antibiotic withdrawal times. The costs may not be realized for months or even years.

The Dairy Cattle Reproductive Council has worked with university and industry professionals to establish reproductive benchmarks to maintain profitability.

When the calving interval is over 365 days, or 12 months, we can potentially lose \$1 per day due to extended low milk production. After 396 days, or 13 months, we will lose \$3 per day in addition to the \$30 we lost for the first 30 days over the optimal calving interval.

It is recommended to have a 45-60 day dry period for cows. We could lose \$3 per day for every day less than 45 days due to not allowing the udder time to rest between lactations. If we go over 60 days for a dry period, \$3 per day can also be lost due to feeding a milking cow with an extended low productive lactation.

For every 0.1 service per conception over >1.5 services, we can lose an additional \$1 for the herd.

And older heifers love to eat the groceries. With feed costs being over half the cost to raise a dairy replacement, there is an additional \$30 per month, just for feed alone, for each month over 24 months for age at first calving.

## Matching Losses to Current Reproduction Program

	500 Cow Dairy	Cost to Dairy
Calving Interval	398 days	\$39
Dry Period	66 days	\$18
Services per Conception	2.2	\$7
Age at Freshening	26 months	\$60
Reproductive Losses per Cow	-	\$124/cow/year
Reproductive Losses Annually	-	\$62,000/year

Source: J.F. Keown & P.J. Kononoff, Dairy Cattle Reproductive Council



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When we combine a dollar here and a dollar there, the losses on a dairy operation quickly add up! And with the financial climate farms have seen the last several years, every dollar counts!

In our example, this 500-cow dairy has a 13.1 month calving interval with a 66-day dry period. It takes 2.2 services per conception, 0.7 more services than the recommended 1.5 services per conception. Also, heifers are calving in two months older than the 24 month industry standard.

When we add the \$30 plus the \$3 per day for the extended calving interval, \$3 per day for the longer dry period, the \$7 for the additional services per conception over 1.5, and the \$60 of extra feeding of the heifers, we have potentially lost \$124 per cow per year. There is an opportunity to gain \$62,000 back in increased reproductive performance for this 500-cow dairy.

Even in tough economic times, making the slightest improvement in reproductive parameters can mean money in the pocket from a more profitable farm.

## What is the Most Limiting Factor for Reproduction?



**Answer: Failure to detect heats**



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When looking at making improvements in reproductive goals, we need to understand what is the most limiting factor for reproduction.

It is the failure to detect heats.

Failure to detect heats is a common and costly problem in reproductive programs. If cows are not found in heat, then semen cannot be placed in her; therefore, not providing a pregnancy with a calf or increased milk production due to a new lactation.

## Advantages of a Systematic Breeding Program

- **Improve** efficiency of heat detection
- **Achieve** more timely first service
- **Reduce** variation in calving interval among cows
- **Reduce** involuntary culling for reproductive reasons
- **Concentrate** labor for reproductive management to specific time periods
- **Improve** overall reproductive performance of herd



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To address the failure to detect heats, many technologies and management practices have been developed and adopted, such as a systematic breeding system using hormones.

A systematic breeding program allows us to:

- Improve heat detection efficiency,
- Achieves a more timely first service,
- Reduce variation, or tighten the calving interval among cows,
- Reduce involuntary culling for reproductive reasons,
- Concentrate already limited labor for reproductive purposes during a specific, known time period during the day or week, and
- Improve the overall reproductive performance of the dairy herd.



## 1995...The Year That Gave Us OvSynch

### Trust the Technology!

It gets the cows pregnant. People, on the other hand, tend to cause most of the problems.

Poor performance is rarely due to physiologic responses of individual cows to the hormonal protocol, but almost always can be attributed to compliance issues at the farm level.

### Economic Impact:

For every day a cow is not pregnant beyond 120 DIM, it costs about \$3 per cow per day.

In a 250 cow herd with an average 140 days open, the cost is \$60 per cow, or \$15,000 per year for the extra 20 days open.



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It has been over 25 years since OvSynch was developed, allowing us to impregnate cows in a timely manner.

When on farms, many times I hear or see on DHIA records a synchronization protocol is not working. More times than not, it is not the actual protocol that is not working; it is the people that do not allow the protocol to work due to changing or not following the protocol.

Again, it costs the farm money when cows are not bred. According to Penn State University, for every day a cow is not bred beyond 120 DIM, it can cost the farm approximately \$3 per cow per day. That is a potential \$15,000 per year for a 250-cow dairy herd with an extra 20 days open as compared to the 120 days open in the milk industry standard.



## Protocol Objectives: Synchronize Heats & Induce Ovulation

- Reproduction is naturally controlled by hormones
- Synch protocols allow us to use this natural process to our advantage
- Utilization of hormones must be administered at specific times following a proven standardized system
- Failure to follow leads to poor results and additional costs



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Reproduction is naturally controlled by hormones. Synch protocols allow us to use this natural process to our advantage to help us know or plan when is the optimal time to breed a cow.

Extensive research has gone into and continues to be a topic of continued research for various synchronization protocols so that we can perform timed AI. However, these protocols do not work if they are not administered correctly resulting in an overall decreased reproductive program and loss in money.

## Factors to Achieving Success

- Cows in good body condition and not under stress
- Commitment to follow the precise synch program
- Proper training of employees entrusted to follow the protocol
- Efficient and accurate heat detection for the specified days when warranted
- Post breeding heat (or return heat) detection must be high
- Proper amount of hormone must be given
- Proper needles, syringes, and hormones usage
- Followed by proper AI technique



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There are several factors to increase success when using a synchronization protocol.

Cows need to be in good body condition and not under stress. Even for natural breeding, cows need to be in good body condition to conceive.

Herd managers, herdsman, and assistants must have a commitment to follow the synchronization protocol to the letter. To help facilitate this, properly trained employees are key. Not only must they follow the protocol for reproductive success, but it also helps if they understand the “why.” Why are we giving a specific hormone on a specific day and a different hormone on another day?

Some protocols allow “cherry-picking,” or breeding cows at a certain time when heats are visually detected. Others require breeding at a certain time after the last hormone injection. Individuals must know what to look for when it comes to signs of heats.

Some cows will not conceive after timed AI for a multitude of reasons. A key to any successful reproductive program is to catch any return heats quickly so that we can reinstate her in a synchronization program or make a decision to cull.

As shared earlier, there has been much research conducted in the last two decades on synchronization protocols. The proper type and amount of hormones, needs, and syringes must be used in the program. And to get a cow bred, we must put semen in her by following proper AI techniques.

## What is Compliance?

“ The administration of treatments or actions according to a prescribed protocol. ”



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One of the leading causes of protocols failing is protocol drift, or not being compliant.

What is compliance? It is the administration of treatments or actions according to a prescribed protocol.

## Compliance Monitoring Points

- The **execution** of the event itself, or
- The resulting **outcome** from that action that is related to the process.



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Dr. Ray Nebel of Select Sires shares there are two points in monitoring compliance on the farm: the execution or the outcome.

Protocol compliance is critical for succession. Execution, or administration, of the protocol is important to get the desired outcome. However, as the protocol becomes more complicated with multiple shots and days, the risk for failure increases.

Monitoring the outcome of the synchronization program is the second area to determine if compliance is being met. Key herd parameters such as days in milk at first service, 21-day breeding cycles, and insemination rates are good places to start. Viewing DHIA Herd Summary reports can also provide insight at a glance if a reproductive program is being followed correctly.

## Program Compliance

Giving the right cows, the right injection, at the right time.

10% ↑ in breeding compliance



2% ↑ in first cycle pregnancy rate

Source: J. Olson



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Program compliance truly means giving the right cow, the right injection, at the right time.

Based on participating farms providing over 5,000 uploads to their 100-day Contract Website, data from Pfizer's (now Zoetis) tech service veterinarians found for every 10 percentage point increase in breeding compliance, there was a corresponding two percentage point increase in first cycle pregnancy rate.

## Important Compliance Factors

- Accurate cow identification
- Appropriate drug type & dosage
- Correct time, day, and route of administration
- Appropriate time of insemination



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To increase compliance, focus on these factors:

- The right cow,
- The correct hormone, such as GnRH or prostaglandin, and the correct dosage,
- Consistency by administering the hormone at the correct time on the correct day of the protocol, and
- Inseminate at the appropriate time.

# Employee Training

An **investment** into the farm business, not just an added expense.

Properly **trained** employees are worth their weight in gold.

When labor is tight, ensure remaining employees have necessary **knowledge** and **skills** to take on new roles, as well as the **time** to include them in their daily tasks.

Remember, if you ask one person to do the work of two, tasks are often not completed as thoroughly.



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Employees will ultimately impact how well your cows perform at breeding because they are the ones implementing the synchronization protocols, watching for heats, catching and breeding cows, or reporting uterine health problems.

Employee training is an investment in the farm business, and should be considered part of the everyday culture on the farm. They are worth their weight in gold, saving dollars when protocols are followed correctly. Trained employees does not just mean being trained in a skill or task, but also trained and educated on the “why” behind the task.

Today’s labor pool is not as deep as it was five or ten years ago. Depending on your situation, you may have considered having fewer people do the same work to cut costs or because you can’t find a replacement. Before making such a decision, make sure the remaining employees have the necessary knowledge and skills to take on these new roles, as well as the time to include these activities in their daily tasks. Remember that if you ask one person to do the work of two, many tasks are not completed as thoroughly.



## Absolute Compliance

What if you were only 90% compliant with a PreSynch/OvSynch Protocol?

Shot	Cow 1	Cow 2	Cow 3	Cow 4	Cow 5	Cow 6	Cow 7	Cow 8	Cow 9	Cow 10
1	x	x	x	x	x	x	x	x	x	
2		x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x
4	x	x		x	x		x	x	x	x
5	x	x	x		x	x	x	x	x	x
Completed protocol?	No	Yes	No	No	Yes	No	Yes	Yes	Yes	No

Source: Dairy Cattle Reproductive Council

Will the protocol work for you?



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Employee training helps to ensure compliance. And not just training, but also re-training, monitoring, and performance reviews.

A standard PreSynch/Ovsynch protocol requires each individual cow to receive five hormone doses at the appropriate intervals. Failure to administer any one of these five injections within the protocol can cause a domino effect. Failure to administer one or more shots properly can dramatically or completely reduce the conception rate at first timed AI. This reduced conception rate of first timed AI will ultimately result in a delay in establishing a pregnancy. This delay in pregnancy increases the calving interval and the services per conception which leads to reduced profitability.

What if an employee was only 90 percent compliant with a PreSynch/OvSynch protocol? Will this protocol work for your farm? When the employee misses giving a shot or gives the wrong injection at the wrong time, is the protocol completed correctly? In this example, only five of the ten cows have received the complete protocol. Is this acceptable?

## When is Good...*Good Enough?*

Compliance at each dose	3 Shot Protocol <i>i.e. Ovsynch</i>	5 Shot Protocol <i>i.e. Pre-Synch/Ovsynch</i>	7 Shot Protocol <i>i.e. Double Ovsynch</i>
	--percentage compliance across the program--		
100%	100%	100%	100%
95%	86%	77%	70%
90%	73%	59%	48%

Source: Dairy Cattle Reproductive Council



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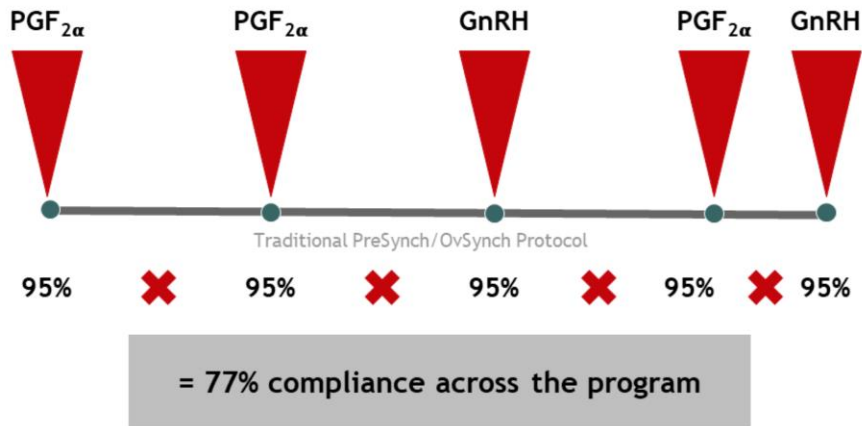
When is good, good enough? When we have absolute compliance in the synchronization protocol.

Even in the eyes of our kids, a grade of 95% or even 90% is “still an A.” They think it is generally “good enough” to see that A on their report card. But what if our kids only gave each dose correctly in a synch protocol 95 or 90% of the time?

Missing 5 to 10% of the cows, or 5 to 10% of the shots adds up, and adds up quickly. Just missing 5% of cows or shots, we are only 86% compliant across the whole protocol in a 3-shot protocol and 70% in a 7-shot protocol. Are we happy with a grade of B or C-?

When we miss 10%, we are then only 73% in a 3-shot protocol and a big fat F at 48% compliant in a 7-shot protocol. Is this good enough when we still had an “A” in the compliance of each dose?

## Good Enough is not Acceptable



Source: P. Fricke



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A grade of 95% is not acceptable!

In this visual, Wisconsin Extension Dairy Specialist Dr. Paul Fricke shows if we gave each shot in a traditional 5-shot PreSynch/OvSynch protocol correctly 95% of the time, it adds up to only a C grade. Over the course of the protocol, our grade is only 77%.

When is good enough, good enough? Only when 100%, or absolute, compliance is achieved.

## Cost Factor of Compliance

### Considerations:

- GnRH = \$3.20 per dose
- Prostaglandin = \$2.50 per dose
- Cow handling = \$1 per cow
- CIDR application = \$9 to \$10 per cow

### Protocols:

- Ovsynch protocol (excluding semen) = \$12.90 per cow *(four-cow handlings)*
- Presynch + Ovsynch protocol = \$19.90 per cow *(six-cow handlings)*
- G-6-G protocol = \$20.60 per cow *(six-cow handlings)*
- Double Ovsynch protocol = \$24.80 per cow *(seven cow handlings)*

Source: J. Fetrow, University of Minnesota College of Veterinary Medicine



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When we look at the cost of compliance, it is not only the long-term costs of delayed pregnancy that is a cost, but also the immediate cost of drugs, syringes, and animal handling.

University of Minnesota Veterinarian Dr. Jim Fetrow shares these costs for the drugs used in a synchronization protocol.

When we are not fully compliant with a protocol, we stand to lose anywhere from \$13 to \$25 per cow per time enrolled in the program. That value adds up each time she is re-enrolled in a synch program to get her bred.

## To Achieve Compliance



**Correct injections | Correct cow | Correct days**



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To truly achieve compliance, the correct injections must be given to the correct cow, on the correct day.

## To Ensure Breeding Success

### Important points to consider when using timed AI protocols:

1. **Use** 18- to 20-g, 1-1/2 inch needles for deep muscle injections of prostaglandin and GnRH.
2. **Choose** correct size of syringe based on the volume of injection (for example, 3-cc syringe for 2-cc injections; 6-cc syringes for 5-cc injections).
3. **Handle and store** hormones according to instructions.
4. **Include** health and cycling status of cows as part of the decision to use a timed AI protocol.
5. **Ensure** that the correct hormone is administered to the right cow at the prescribed time.
6. **Double-check** ear tag IDs of cows before each injection. Prostaglandin will lyse the corpus luteum and induce abortion.



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Employee training will also help ensure a successful breeding program. But to be successful, the employees must have the right tools to do their job correctly.

It is recommended to use a 18- or 30-gauge needle, 1½ inches in length to ensure the hormone is being administered intramuscularly.

Syringes should be properly sized as not to waste the drug and to help ensure that we are administering the proper amount.

Handling of hormones can be a risk factor for individuals. Always handle and store hormones according to labels to ensure efficacy of the drug and reduce any risks to individuals handling the drugs.

Utilize updated cow-lists and have a routine for when shots are given on which days.

And finally, double-check the ear tag of the animal receiving a shot. Not only do we need to make sure the correct cow is getting the correct shot, but also a pregnant cow does not receive a shot that may cause her to abort.



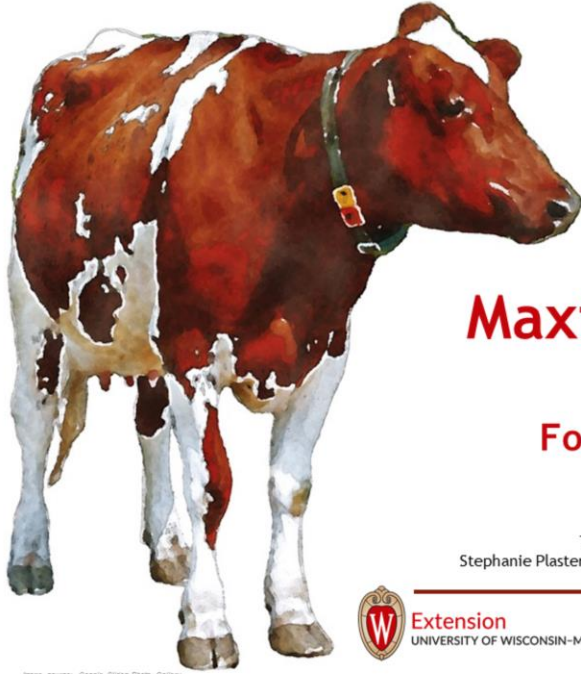
Even small improvements will impact your bottom line.

There are a lot of little opportunities available to improve overall profitability and reduce reproduction costs.

A dollar here, a dollar there. Even on the most well-managed farm, the dollar here/dollar there impacts overall farm profitability. Even the smallest of improvements will impact the bottom line.

A top reproductive program really defines a successful dairy. There are a lot of opportunities available to improve overall profitability just through protocol compliance alone.





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image source: Google Slides Photo Gallery