Making Money with Commercial A.I.

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I would like to thank the Beef Cattle Improvement Federation for the opportunity to present my information at this prestigious forum. Although this data would not pass scientific muster, it is of the real beef cattle world and is the support that confirms to me that my work is feasible and is adding value to my end product.

Hillwinds Farm has been operating for 20+ years in the Blue Ridge Mountains of Southwest Virginia. We have a family run operation that we started. The operation includes my wife, Cathy, and our four children, Laura, Alison, Caroline, and Heath. The operation consists of 1047 acres of owned land and about 1000 acres of leased land. We pasture all of this and make 500 acres of hay. We are primarily a commercial cow/calf business with 709 Angus cross cows. We calf in the spring and fall and retain ownership of the calves until slaughter. The calves are custom fed in Nebraska. We also purchase and background 1000 stocker calves each year and we retain ownership on these calves as well. Hillwinds Farm is the home to the Southwest Virginia BCIA Bull Test Station where we develop about 200 bulls each winter. We also have 150 commercial Suffolk ewes.

Today I want to talk about net return to the cow. There are several measures we use to gauge productivity: percent calf crop weaned, weaning weight, average daily gain, percent choice or better. However, any of these by themselves don't mean a lot. They are all factors in profitability but to achieve maximum levels of performance in any one of these usually hurts overall profitability. Net return is the one measure that we would like to maximize.

I believe that some of the best ways to increase net return is through estrous synchronization, artificial insemination (AI), and retained ownership through slaughter. The data presented, I hope will support this statement. We have been using estrous synchronization and artificial insemination on a whole herd basis since 1999 and retained ownership since 1996. The information presented is the actual field, feedyard, and harvest figures.

We start with the cost to create a pregnant cow either from AI or natural service.

Artificial Insemination					
Semen			$12.00	per straw	
Prostaglandin			$2.15	per 1 (5cc dose)	
GnRH			$3.00	per 2 (1.5 cc doses)	
Chute Charge/Heat Detection			$6.00		
Insemination			$2.50		
			$25.65		
$25.65/ 65% AI conception rate = $39.46/AI Pregnant Cow					

Natural Service				
Bull Purchase Cost			$2,800	
Bull Salvage Value			$1,000	
			$1,800	
Number of breeding seasons			4	
Number of cows exposed/year			30	
Bull cost/cow exposed			$15.00	per cow
Bull Maintenance Cost ($450/year)			$15.00	per cow
			$30.00	
$30/ 90% conception rate = $33.33/ Natural Service pregnant cow				

This results in a $6.13 advantage for the natural service pregnant cow. There is also a cost of time, planning and stress on cattle, facilities, and people when implementing an AI program. We believe that the benefits of synchronization and artificial insemination outweigh this cost.

Prior to starting our AI program, we had pregnancy rates of 93 to 95% and had 70% of the cows calving in the first thirty days of ninety day calving seasons. The past six years, we have had between 95 and 97.5% pregnant cows with 85 to 90% of cows calving in the first thirty days and the calving season is 65 days in length. This has happened because nearly all of the cows are bred on day 1 of the breeding season and we can routinely back up our later calving cows some as much as 60 days. The average AI sired calf is 27 days older than the average natural service calf. Also our average calf on a herd basis is 16 days older now than before we started the AI program. The fall group from 2006 was pregnancy tested earlier this year with the following results:

Group	% Pregnant	% Bred AI	% AI Pregnant
Heifers	90	90	61
2 Year Olds	96	96	74
Cows	97	93	74

We work to be consistent in our AI program and to pay attention to details such as timing of injections, semen handling, and cattle stress. We use bulls that have high quality semen, high conception, and are proven.

Our heifer program is the 7 day CIDR protocol. We breed on standing heat with no timed AI. The 2 year olds have exposure to a teaser bull 50 days prior to breeding and then we use the Ov-Synch with a CIDR program. The cows are on a regular Ov-Synch schedule.

AI calves that are born at Hillwinds have required delivery assistance 1.3% of the time whereas as non-AI calves are assisted 2.9% of the time. The difference is due to higher accuracy on birth weight and direct calving ease EPDs for AI sires. Ninety percent of assists occur in first calf heifers.

AI sired calves from birth to harvest had a death loss of 3.5% compared to 5.5% for non-AI calves. This is due to closer observation at

calving and lower birth weights of AI calves. In addition, the older AI calves have more resistance to pneumonia and scours. Losses occurring after weaning are not significantly different between the two groups.

The spring steer calves from 2006 were born in February and March, weaned in early September, backgrounded 45 days, and sent to feed in late October. The steer calves are divided into four groups based on the parentage. The following weights were taken in October:

Group	Ave Weight	Age	Wt/Day of Age
Sire AI Dam AI	775	262	2.96
Sire AI Dam Non-AI	740	255	2.9
Sire Non-AI Dam AI	707	237	2.98
Sire Non-AI Dam Non-AI	673	233	2.89
	720	245	2.94

The steers were shipped to Nebraska on October 24, 2006 and harvested in four marketing groups from April 4, 2007 to May 10, 2007. The feedyard performance on each group is as follows:

Group	Live Wt. at slaughter (4% Shrink)	Days on Feed	ADG
AI/AI	1311	170	3.21
AI/Non-AI	1260	172	3.18
Non-AI/AI	1241	179	3.14
Non-AI/Non-AI	1235	189	3.13

The steers were age and source verified and sold grade and yield. Carcass performance and net return are listed by group:

AI Bulls on AI Cows					
Quality Grade	Yield Grade	Percentage	Avg Premium Base	Net Return	
97% Choice	2 & 3	94%	$78	$1,390	(gross return)
3% Select	4	6%		-$364	(feed cost)
				-$54	(trucking)
				$972	
$972 net to cow divided by 775 pound delivery weight = $1.25 breakeven price					

AI Bulls on Non-AI Cows					
Quality Grade	**Yield grade**	**Percentage**	**Avg Premium Base**	**Net Return**	
85% Choice	2 & 3	92%	$67	$1,331	(gross return)
15% Select	4	8%		-$368	(feed cost)
				-$52	(trucking)
				$917	
917 net to cow divided by 740 pound delivery weight = $1.24 breakeven price					

Clean Up Bulls on AI Sired Cows					
Quality Grade	**Yield grade**	**Percentage**	**Avg Premium Base**	**Net Return**	
74% Choice	2 & 3	100%	$56	$1,290	(gross return)
26% Select	4	0%		-$383	(feed cost)
				-$52	(trucking)
				$857	
$857 net to cow divided by 707 delivery weight = $1.21 Breakeven price					

Clean Up Bulls on Non-AI Sired Cows					
Quality Grade	**Yield grade**	**Percentage**	**Avg Premium Base**	**Net Return**	
61% Choice	2 & 3	100%	$32	$1,248	(gross return)
39% Select	4	0%		-$404	(feed cost)
				-$47	(trucking)
				$797	
$797 net to cow divided by 673 delivery weight = $1.18 Breakeven price					

Overall Spring 2006 Steers		
Average live weight	1262	lbs
Average days on feed	174	days
Average daily gain	3.2	lbs
Gross return per steer	$1,317	
Feed cost	-$372	
Trucking	-$50	
	$895	

	% Choice	YG 3 or better	Premium	Net Ret.
Sire AI Dam AI	97	94%	$78	$972
Sire AI Dam Non-AI	85	92%	$67	$917
Sire Non-AI Dam AI	74	100%	$56	$857
Sire Non-AI Dam Non-AI	61	100%	$32	$797
Group Average	**80**	**96%**	**$59.91**	**$895**

If we compare a calf that is AI sired and out of an AI sired cow with a calf that is sired by a cleanup bull and a non-AI sired cow, the difference in the end value is $175. Maybe a better way to look at the difference is to calculate out net return using the entire calf crop on our current program. That figure is $775/cow.

Now, pull out the cows that are not AI sired and have calves that are not AI sired and the net return/cow is $685. That is a difference of $93. Subtract from that the extra AI cost of $6. In our herd, we see an added $87/cow in net return. On a herd basis, this is worth over $60,000/year in net return which more than makes the payments on 500 acres of our land.

I hope that it is now clear why we use estrous synchronization and AI in our program. When we began our beef cattle operation I wanted to operate within the main stream of the beef cattle industry. We were told by many people that there was no money in cattle and that you can't make a living let alone purchase land. You know, they were right! Except they assumed we would operate our farm their way. We found our own way. Again, thank you very much.