

SimAngus Crossbreeding Proposal

A Senior Project

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by

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Abstract

The purpose of this project is to develop a proposal for a crossbreeding plan specifically oriented towards a Central Valley beef producer interested in SimAngus cattle. In this project you will find information pertaining to the Simmental, Angus and SimAngus breeds, as well as industry goals and possible outcomes. This was designed in order to create tangible evidence and information, such a pamphlet/brochure, for the producer to evaluate; in hopes that the beef producer will implement this crossbreeding plan.

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Chapter 1

Introduction

Cattle ranching has been around for centuries. It was first brought to America in the 1600's by the Spaniards. The Spaniards brought the cattle with them when they moved and settled into Texas. The cattle were used to feed and support the civilians, missionaries and soldiers around the San Antonio and Goliad areas. This is where the beef industry and cattle ranching first began. Eventually the Spaniard's herd became too big to control and the missions began to decline which led to residents gaining control of the cattle and starting their own herds. This was the start of private ranching (Richardson, 2010).

Private ranchers were raising cattle to supply the population with animal protein, therefore the breeds that were most efficient in weight gain and adaptability were the breeds that survived and started the beef industry as we know it today.

The desirable characteristics of the beef industry today are high feed efficiency, or conversion, adaptability, high carcass yield, high marbling, good fertility, high milking ability, low birth weights, high weaning and yearling weights, good disposition and temperament (Quality Animals). The reason these have become the goals of the beef industry is because, these are the traits that have led to the most successful and productive cattle.

Most ranchers are trying to produce the best animals with the least amount of costs, therefore they are looking for cattle who can convert low quality feeds, such as salt grasses, poor pastures and range land forages into quality gain (University of Arizona). There is not a single breed of beef cattle that is capable of meeting all of these desired characteristics in all of the various climates and terrains of the United States, so breeders have had to come up with a

method of tailoring the breed to their specifications. This was when crossbreeding was introduced to the beef industry.

Crossbreeding has allowed for the expansion of desirable and productive cattle across the entire nation. There are many advantages of crossbreeding it allows for an increase in maternal heterosis, breed complementarity and direct heterosis. Maternal heterosis can include traits such as milking ability, calving weights and mothering ability. Breed complementarity accounts for traits such as adaptability, feed conversion, heat and insect resistance. Direct heterosis includes the ability to marble, muscling, weaning weights and overall quality traits (Alkire, 2012). A disadvantage to crossbreeding is the prolonged results, versus instant results.

Because not all breeds are capable of being as productive, feedlots operations and ranchers are turning to alternative forms of improving their herds. One of these is the use of Beta-Agonist drugs. Beta-Agonist is a drug used to increase the feed efficiency of an animal (Radunz, 2011). This has become a controversial issue because people believe that this is unnatural. People tend to feel like the use of drugs such as these taint the meat product. This can deter people from buying beef products, therefore why not use a more natural way of improving genetics? The safer and better way is crossbreeding.

Overall, crossbreeding allows for ranchers to create a herd that is best suited for their conditions. In the case a rancher has land that has very low quality feed, they would need an animal that is capable of turning low quality feed into desired pounds per day, but not all breeds are capable of doing so. This is where crossbreeding a more adaptable breed with a higher quality breed, comes into play. There are various types of crossbreeding methods being used today, and most ranchers are using some form of crossbreeding in their herds to improve the overall performance.

Statement of the Problem

The Angus cattle are one of the top breeds in demand in the beef industry today, yet the problem is they do not have the best feed conversion or muscling. Therefore, it is necessary to improve the genetics and performance of the herd by introducing a breed that is still desired but has more muscling and better feed conversion.

The Importance of the Project

It is very important to the cattle industry to be as profitable as possible. This means it is important to produce the best cattle with the highest quality meat and highest yield with the least amount of input or cost being put in. This project is important in order to find the best breed suited for a beef cattle rancher located in the Central Valley of California.

This project can also be important for agricultural education when thinking about the SAE and classroom portion of FFA. Most future students will come to teachers with questions such as what is the best breed for them to show. This project shows the benefits of two specific breeds, but also explains what is desired in the beef industry and what to look for in beef cattle. This could be very beneficial to anyone advising the beef projects of an FFA program. Also many teachers could turn this into a presentation for an animal science class teaching the importance of crossbreeding.

Purpose of the Project

The purpose of this project is to develop a proposal for a crossbreeding plan for a Central Valley rancher interested in SimAngus cattle. This project and pamphlet will establish breed information, the pros and the cons of the Simmental, Angus and SimAngus breeds.

Objectives of the Project

- Research and present breed characteristics of the Angus breed
- Research and present breed characteristics of the Simmental breed
- Research and present breed characteristics of the SimAngus crossbreed
- Research and present the benefits of SimAngus crossbreed compared to the individual Simmental and Angus breed
- Research and inform the producers on the goals of the beef industry as well as which goals each breed meets and is deficient in
- Establish a platform for a crossbreeding plan
- Provide the producer with a tangible easy to read pamphlet including the desired information

Definitions of Importance

- Crossbreeding – the act of mixing different species or varieties of animals or plants and thus to produce hybrids
- Heterosis – hybrid vigor, or outbreeding enhancement, is the improved or increased function of any biological quality in a hybrid offspring
- Maternal Heterosis – the enhancement of traits passed down by the mother
- Breed Complementarity – the improvement of heterosis as well as heritable traits, such as adaptability and resistance
- Feed Efficiency – ability to convert feed into pounds of weight gain
- Marbling – the amount of intramuscular fat found in the meat

Stating a Hypothesis

By crossbreeding Angus and Simmental cattle you can create a breed with optimum genetics, which will increase production dramatically. Increasing the productivity of cattle will ultimately increase the profitability of the company.

Summary

The goal of this project is to improve the genetics, production and profitability of an Angus cattle ranch by crossbreeding the breed with Simmental cattle. The Angus cattle are very desirable cattle of the beef industry yet seem to be lacking in a few areas when being raised on a ranch in the central with low quality feed. Therefore it is important to introduce a breed of cattle into the herd that can better utilize the feed found on the ranch.

It is important for the producer to better understand the desired traits of cattle and to better understand crossbreeding in order to promote a successful operation. That is why crossbreeding Simmental genetics into the Angus herd will increase production and profitability.

Chapter 2

Literature Review

One of the most important parts of a cattleman's herd is its genetics. Cattlemen try to avoid and prevent poor genetics, simply because that leads to undesirable cattle, and undesirable cattle won't sell. The goal of this senior project is to propose a plan to better the genetics of a Black Angus cattle herd by introducing Simmental genetics. Chapter 2 will focus on the background of both breeds and their benefits.

History of Black Angus Cattle

Angus cattle were originally called Aberdeen Angus cattle, and in most parts of the world are still referred to as such, this is because they originated in the counties of Aberdeenshire and Angus Scotland. The Angus cattle have been around for some time, there has been a record of them since before the 1800's, and Hugh Watson is considered to be the founder of the breed (MacDonald, 1910). Watson was known for gathering a wide variety of cattle stock and producing outstanding genetics for both quality and character, this ultimately led to him creating the Angus breed (The Cattle Site, 2000). There were two cattle in Hugh Watson's herd that stood out among the rest, a bull named Old Jock and a cow named Old Granny. These two cattle were known for having superior genetics, Old Jock was born in 1842 and Old Granny was born in 1824. A majority of Angus cattle alive today can have their pedigrees traced back to these two animals (MacDonald, 1910).

The Angus cattle eventually made their way to America thanks to a man by the name of George Grant. George had four of his Angus bulls brought to the Kansas Prairie in 1837, which

he took to the Kansas City (Missouri) Livestock Exposition (American Angus Association [AAA]). Not many people liked these animals originally because they were accustomed to cattle like Texas Longhorns and Shorthorns, so since Angus cattle are polled, meaning hornless, they thought they were weird (MacDonald, 1910). These bulls were only used for crossbreeding, but their crossbred offspring caught the eye of many cattle ranchers. Therefore this started the importing of more Aberdeen Angus cattle, and in 1883, the American Angus Association was established. There are two different types of Angus cattle referred to in the United States today, Red Angus and Black Angus - the only difference between the two breeds is their color. The original Aberdeen Angus cattle produced both red and black offspring; it wasn't until they came to America that they were categorized by their color (MacDonald, 1910).

Angus Cattle Characteristics

Angus cattle have many desirable characteristics, which is probably why so many people prefer these cattle over various other breeds. Angus cattle are naturally polled and can be either black or red, but the dominant color is black. Although most of the Angus cattle seen today are typically black, it is normal for them to, on occasion, have a white udder (The Cattle Site, 2000).

Angus cattle have many positive attributes. This breed is known for having great maternal instincts, meaning they are typically great mothers, meaning have really high milking ability, protect and raise their young well. Angus cattle produce an abundant amount of milk through to the weaning of their calf, these cows are said to really put their all into their calves (The Cattle Site, 2000). Another advantage of the Angus breed is their calving ease. It is important for ranchers to have cattle that are able to successfully birth their calves, and since they have such low birth rates assistance in the birthing process is rarely needed. An

advantage to the calves themselves is they mature early and grow up to have fantastic carcass merit, meaning high quality meat with good marbling (O'Mary, 1979).

Although there are many advantages to this breed, there are also some serious disadvantages. The main issue with this breed is their problems with adaptability. Angus cattle have a hard time adapting to hot humid climates and in some parts of the United States, such as Florida or other hot humid southern states, it's simply just too hot for them to thrive. Since the majority of Angus cattle in the United States are black, they tend to have issues in areas with high solar radiation, which limits them to certain times of the day they can be up moving around and grazing (O'Mary, 1979). Another disadvantage sometimes seen in these cattle is that they tend to be smaller framed compared to various other breeds, which means less muscling and lower growth rates (UGA Extension).

History of Simmental Cattle

Simmental cattle are believed to possibly be the oldest and most wide spread cattle breed in the entire world (American Simmental Association [ASA]). Even though the first Simmental herd book didn't actually show up until 1806 in Swiss Canton of Berne, there is evidence of an early breed of Simmental in Western Switzerland that dates back as far as the 1700's (ASA). The Simmental cattle got their name from where the cattle were first bred, Simme Valley, which is in Berner Oberland, Switzerland (The Beef Site).

Simmental cattle were widely liked due to their various uses, these cattle were of very good size which made them useful for draft purposes. They also had very high milking ability which made them perfect for being used for milk and their muscling was great therefore they made plenty of meat. Because these cattle had so many uses beef breeds began to demand them

all over the world and countries began importing them. Italy began importing them first, and then by the 19th century they had been distributed all over Europe. They gradually made their way over to Russia, Africa, and South America and by the 1960's they were spread worldwide (The Beef Site). Simmentals are believed to have shown up in the United States as early as 1887 in Illinois, but the American Simmental Association [ASA] wasn't established until October of 1968 (Breeds of Livestock). Now the ASA has over 80,000 registered Simmental cattle annually and the association is ranked among the top four of the United State beef breeds associations (River Creek Farms).

Simmental Cattle Characteristics

The original Simmental cattle were white and red, but the American Simmental, which is what seen today, are red and black just like Angus cattle. Simmental cattle can be either horned or polled; if they have horns they will grow upward (The Beef Site).

There are many advantages of the Simmental breed. Just like the Angus cattle they have lots of maternal traits and they have even better milking ability than Angus cattle. They also have low birth weights, and are known for having great calving ease and mothering ability. This breed is known for reaching maturity early, short intervals between calving, good growth rates, excellent feed conversion and being a heavier framed animal (The Beef Site). "Their economic benefits to beef breeders are almost unsurpassed by any other breed. They are of renowned docility, and have excellent weight gaining abilities. The carcass yield is very good, with meat grading high. Simmental beef is tender and highly palatable" (A Site about Cows).

Breeders will find something undesirable in every breed, this is why they all have their disadvantages. Simmental cattle also don't do as well in hot humid conditions, and the black

ones are more sensitive to solar radiation. Another trait that some breeders find undesirable is that they are not bred for any specific color; therefore even when you are breeding with Black Simmentals with an extensive pedigree of black dams and sires, there is a chance you could get a few red offspring or offspring with white markings. Some people also believe that Simmentals may require more maintenance due to their size and feed requirement, meaning better fencing, being watch during birthing and fed more often (UGA Extension). Since both breeds traits have been discussed, now to discuss the desired traits in the industry.

Desired Traits in the Beef Industry

The beef industry calls for specific traits in cattle. Some of the genetic traits that the beef industry is looking for are:

“High adaptability, high efficiency and feed utilization, desirable carcass qualities, beef with ample muscle and bone structure, greater weight for age and rate of gain either at pasture or on yard feeding, greater economy of gain in feeding, high percentage of calf crops, lower labor costs, good fertility, good for maternal and rotational crossbreeding, docility and ease of management, lower wintering costs, early maturity and longevity” (Quality Animal).

The reason for these desired traits listed above are strictly for efficiency purposes. Every rancher’s goal is to increase the profitability the most efficiently (Gadberry, 2002). The better feed utilization the less costs, the lower the birth weights the less assistance and labor as well as potential losses (Herring, 1996). The better the fertility the more offspring they are likely to have and the better the maternal instincts the better the mom will raise them their survival rate will be better (AAA). All of the traits above influence how desirable the cattle will be, and having

desirable cattle can influence how profitable a cattle operation will be, therefore the industry breeds for specific traits such as these.

Not only is the beef industry looking for specific genetic traits like the ones listed above, they also want uniformity. There is a demand for “Black Angus,” so in the current market there is a desire for black cattle; black hided animals generally are more desirable than those who are red, white, dun or any other color. “Black-hided. It’s the initial requirement for more than 80 beef brands certified by USDA” (Reiman, 2012). Reiman also stated that nearly 75 percent of all United States cattle are black-hided. This means that breeds that produce black-hided offspring are more desirable in the beef industry. Although not all breeds that meet the needs of the market are black, a breeder can somewhat manipulate the breed coloring by introducing a breed with the desired hide color through crossbreeding.

Benefits of Crossbreeding

“Crossbreeding is the mating of two individuals with different breed makeup” (Hill, 1971). Although crossbreeding has been around for a very long time, it wasn’t until these last couple decades or so that crossbreeding really started to take off in the beef industry, this is because people finally understood genetics (Crossbreeding Beef Cattle). Breeders now see the how vital crossbreeding is to the survival of the beef industry, as mentioned previously not one breed is perfect, they all have their flaws, therefore crossbreeding can minimize or eliminate some of these breed disadvantages.

. There are various benefits to crossbreeding, but there are two main ones. The first one is “a well-designed crossbreeding system allows the producer to combine the desirable characteristics of the breeds involved in the cross while masking some of the disadvantages of

the breeds” and the second one is heterosis. Heterosis, or hybrid vigor, can be thought of as the superior performance of the crossbred relative to its parents, or the ability of the progeny to perform better than its parents (Hill, 1971). This has become a necessity in the beef industry because it has allowed for the bettering of genetics, as well as genetic variation.

Genetic variation is important in order to prevent accidental inbreeding. Inbreeding is the mating of closely related animals, such as father to daughter, son to mother or cousin to cousin. This can result in various problems within a herd, such as random losses, birth defects, sterility, poor performance, and less attractive cattle due to undesirable traits, listed above, being produced (Northcutt). Previously mentioned many of the Angus cattle of today can somehow be traced back to the original Angus herd, such as Old Jock and Old Granny. This means that there is not much genetic variation in the Angus breed, therefore introducing new genetics to such as the Simmental breed can increase the genetic variation and reduce the risk of undesired traits showing up in a herd.

SimAngus Cattle

A SimAngus is a crossbreed between a Simmental and an Angus. The offspring can be comprised of 1/8 to 7/8 Angus and 1/8 to 7/8 Simmental. Breeders can choose the percentage of the mix that best fits their herds needs. The SimAngus has proven to be a very popular breed lately due to their increased performance and their market acceptability. It is believed that the SimAngus hybrid is superior to other composite cattle due to their complementary advantages from their Simmental and Angus genetics (Allied). There are many advantages of a SimAngus, some are easy calving, polled, solid coat color, excellent weight gain, ideal fattening pattern, high meat yield, excellent meat quality, females that exhibit both excellent fertility and milking

ability and great dispositions (SimAngus). SimAngus is a prime example of a successful crossbreeding program.

Summary

Both the Angus and Simmental cattle are very strong and desirable breeds in the beef industry, yet each breed does have a few of its own problems. One of the main problems with the Angus breed is that they tend to have a smaller frame and less muscling, and high muscling is a desired trait in the market today, whereas Simmental cattle have a very desirable body frame and muscling ability. The Simmental breed requires more maintenance than the Angus breed, which is a downfall of the Simmental breed. Overall both the Angus and Simmental breeds have a copious amount of desirable characteristics and traits, therefore crossbreeding these breeds can eliminate some of the less desirable traits and create an even better progeny, the SimAngus.

Chapter 3

Methods and Materials

It is important to beef producers that they are able to produce the best carcass beef possible, as well as have the best feed conversion, mothering ability, birth weight weaning weight and many other traits within their herd. One may find that the best carcass comes from a particular breed of cattle, but has terrible feed conversion; therefore producers must find the qualities of a breed that is optimum and try to merge them into offspring that represents both categories instead of just one. That is why this project was created; this project is designed to help Angus producers in the Central Valley foothills optimize their herd potential in order to maximize their profits. The final document is a pamphlet that will show producers one way to do this. There are three main parts to the pamphlet; the first part is to talk about all of the advantages and disadvantages of the Angus cattle. The second part will talk about the advantages and disadvantages of the Simmental cattle, and lastly it will discuss the benefits of crossing these breeds in order to maximize your herd potential.

Research

Before the pamphlet was created, a lot of research had to be done. Both the Angus cattle and the Simmental cattle had to be thoroughly researched. This included better understanding the breeds, knowing why these breeds are used and preferred in some situations, and understanding the history of this breed, such as where they came from and how they came about. Many sources were used in finding information on these breeds, which can be found in the work cited. After both of those breeds were researched, then research was done on the SimAngus breed, which is

a cross between the two.

After research was done on the SimAngus breed it was time to determine whether or not this cross would be suitable in order to increase the genetics of an already existing Angus herd in order to better maximize the profitability of the organization. With all of the information gathered it was time to put together something tangible in order to present the information and proposal for Angus producers. I gathered a variety of Simmental and Angus EPD (Expected Progeny Difference) charts and compared them in order to see the differences and similarities between the breeds. That way when it came time to put together the pamphlet there would be EPD charts on there that beef breeders could use to compare Angus and Simmental as well.

The Pamphlet

In order to present the finding to Angus producers all of this information had to be put into a way that they could see the research and be able to handle it themselves, so it was decided that a pamphlet would be a good way to present the research. Pamphlets are easy to read, concise, to the point and are a good way to explain topics to an audience. The document was created in Microsoft PowerPoint, after the text was written in Microsoft Word and the pictures were taken from various sources in order to give the reader something to look at besides text. This is a good way to keep the reader's attention, prevent from overwhelming the reader and avoid creating an eyesore. After the document was created there was some various editing until the pamphlet was finally completed.

This document was created mainly for one beef producer in the Central Valley, located in the foothills outside Los Banos, California. Therefore this document will be printed out and presented to him in order for him to evaluate the benefits of introducing Simmental genetics into

his herd, and then he will decided whether or not to go forward with the plan. But this document could potentially be given to other beef producers in the Central Valley after it has been tested and more proven results have been gathered.

Summary

In the end the pamphlet was created in order to explain and present my proposal to Angus producers after extensive research. It was broken down into three different subsections in order to make it easy to read and straight forward. This pamphlet is intended to be used in order to explain the benefits of introducing Simmental genetics to your Angus herd in order to optimize your overall herd potential which can lead to maximizing your profits and making ones organization a greater success.

Chapter 4

Results and Discussion

The goal of the project was to create a proposal for an Angus beef producer in the Central Valley. He was looking for a way to better his herd's genetics, as well as increase his operations profitability. The proposal is that he looks into introducing Simmental genetics by changing to SimAngus bulls instead of Angus bulls. In this chapter the pamphlet was created in order to give the producer some tangible evidence on why using SimAngus bulls is the best way to go about enhancing the herd's genetics.

Results

This chapter presents the finding of the project proposal. The author created a pamphlet as requested by the rancher in order for him to see some evidence on why Simmental genetics could enhance the genetic makeup of his Angus herd, as well as give him some numbers to look at as to how much a SimAngus bull might cost and how much SimAngus cattle could potentially sell for on the current market. The rancher will receive the pamphlet as well as all the information gathered and used in order to create this proposal, he may review it thoroughly and potentially make a decision whether or not to use the author's plan of introducing Simmental genetics to the already existing Angus herd.

Discussion

The most difficult part of the project was determining what kind of information the beef producer was looking for, as well as finding out what he was trying to get out of his current herd.

Every breed of cattle has its specific uses, therefore it was important to find out what the producer was trying to enhance in his cattle. Once it was established that the producer was looking for increased muscling, better feed efficiency, higher weaning weights, low birth weights and a breed that can still maintain all the maternal traits, the author was able to find that Simmental genetics was the best way to do this.

The author did extensive research on various cattle breeds before determining that Simmental was the best for the job. Then after, the author also did even more extensive research on just the Angus and Simmental cattle in order to come up with the necessary information to present the finding and conclusion to the producer.

It was then determined that the producer wanted tangible evidence to look at and review, but something that was easy on the eyes and not overwhelming or complicated to read. This was when the author decided that the best way to go about this was by putting together a pamphlet with all the necessary information put together and organized in an easy to read manner

Where to find SimAngus Bulls in the Central Valley

You can find SimAngus cattle all over California, both bulls and replacement heifers. There is a seed stock operation outside Sacramento in Ione, they sell replacement heifers throughout the year and have an annual bull sale in September.

This operation is called Circle Ranch SimAngus and Angus Seed stock.

You can also find SimAngus bulls at the Silveira Bros Bull Sale in Firebaugh, CA. There are various breeders throughout the Central Valley that take their bulls to this sale every year and lately SimAngus bulls have started showing up.

Another place you can find SimAngus bulls is the Annual Cal Poly Bull Test. This sale has been around since 1956 and is held sometime around the beginning of October. These are just a couple of the places you can find SimAngus bulls in or around the Central Valley when considering introducing Simmental genetics.



CAL POLY

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BENEFITS OF CROSSBREEDING SIMMENTAL X ANGUS

SIMANGUS BEEF CATTLE



Kaity Arburua

Figure 1A

Benefits of Crossbreeding

Crossbreeding has become quite common in the beef industry. It is the process of mating two different breeds in order to take advantage of hybrid vigor.

The beef industry is looking for cattle that grow fast, have good feed conversions, high fertility, prolific and easy management. They also want cattle with ample muscle and marbling in order to meet the demands of the market, as well as being the most efficient.

Generally one breed isn't able to encompass all of the desired traits, therefore crossbreeding helps ranchers by allowing them to pick one breed strong in maternal traits and another strong in paternal or terminal traits and cross them in order to create a progeny who can excel in both areas.

Pricing

The average cost of an Angus bull is \$4,710 and the average cost of a SimAngus bull is \$3,511. As you can see the SimAngus bulls can save a rancher money during the investment period. Yet when it comes to selling SimAngus heifers and steers in the market it brings in an increased profit compared to other breeds.

It is proven that SimAngus on average yield 76% higher choice or better cuts compared to the industry average at less than 50%. As well as when selling females on the market a replacement heifer brings in roughly \$750-\$1000 more and a bred cow can bring in \$1050-\$1500 more than the industry average as well. As one can see there would be less investing in the beginning but increased profitably overall by using a crossbreeding system with Angus and Simmental cattle.

Angus Cattle Characteristics

These cattle are used in the beef industry because they are naturally polled, black hided animals with many desired characteristics. They are known for great mothering ability, calving ease, decent milk production, their calves have small birth weights, and average weaning weights. Angus also mature early and are found to have great carcass merit. This means they mature early and have good marbling. The average EPD's of an Angus would look something similar to the chart below.

Breed	BW	WW	YW	Milk
Angus	3.1	27.3	48.2	11.1

Simmental Cattle Characteristics

Simmental is also a commonly used breed amongst the beef industry. They are also polled and can come in various colors, but can be bred to make homozygous black cattle. Simmentals are known to have great mothering ability, one of the highest milk production for beef cattle, docility, more muscling and higher weaning weights than Angus cattle, yet still maintain the low birth weights. These cattle also have one of the better feed conversions, which is great for rougher grazing or drought conditions. The average EPD's of the Simmental breed can be seen in the chart below.

Breed	BW	WW	YW	Milk
Simmental	4.0	30.6	48.6	9.4

Below is a comparison of the two breed.

Breed	BW	WW	YW	Milk
Angus	+0.0	+0.0	+0.0	+0.0
Simmental	+7.3	+24.4	+42.2	+13.6

SimAngus

Breed Characteristics

The SimAngus breed has recently become a popular breed in the beef industry, this is because they are proven to have increased performance. Due to the crossbreeding, they have many complementary advantages such as being polled, solid black hide, great calving ease, better feed conversion, ideal marbling, high yield and quality of meat. Female cows are often found to have increased mothering ability and higher milk production as well. Below is an example of SimAngus EPDs.

TRT	CED	BW	WW	YW	MCE	MILK	MWW
EPD	+16.4	+1.2	+72.2	+111.5	+12.5	+20.2	+56.3
ACC	.73	.82	.77	.75	.57	.57	.62

TRT	CW	YG	MRB	BF	REA	SHR	DOC
EPD	+38.0	+0.7	+8.2	+0.16	+4.3	+3.7	+15.2
ACC	.56	.47	.61	.56	.57	.36	.51

Acceptance

In the past couple of years there has been an increased demand for SimAngus cattle. Many auction yards across the country are running out before people are done buying. Even the American Angus Association is noticing this and has had to create comparison EPDs as well as they are beginning to sell some SimAngus bulls through AAA sponsored auctions.

The American Simmental Association is a firm supporter of the SimAngus breed, which consists of 1/8 to 7/8 Angus and 1/8 to 7/8 Simmental. With every year the number of SimAngus on the market is increasing. The beef industry are welcoming SimAngus cattle with open arms.

Figure 1B

Summary

The final document can be seen above in Figure 1A/ 1B. Overall the pamphlet came out quite well, and there were only a few issues with how to create the document and how to get all the information concise yet still maintaining all the important information. But once all the issues were solved and all figured out everything managed to fall into place.

Chapter 5

Summary, Recommendations and Conclusions

Summary

This project was created in order to help a beef producer learn about the potential of introducing Simmental beef genetics in to his Angus herd in order to optimize his production level. The goal of any beef producer is to be able to produce the best carcass possible, but still have the best feed conversion, mothering ability, birth weight, weaning weight and many other traits within their herd. Therefore in order to increase the carcass weight but still maintain all of the great Angus qualities one must look into crossbreeding and other potential breeds. This producer already had great interest in the Simmental breed, so in order to meet the needs of my producer who I am researching for I created a well-researched project and pamphlet giving all of the pros and cons of both breeds as well as the pros and cons of the SimAngus breed. This senior project gives much needed information in order for the producer to make a decision whether or not to implement a Simmental X Angus crossbreeding plan.

Recommendations

The following are recommendations based on this project:

1. This pamphlet and research was done and should be used by beef producers interested in implementing a crossbreeding program in their herd, particularly those who have an interest in Simmental, Angus and SimAngus cattle.

2. If looking to make a pamphlet Microsoft Publisher 2010, and higher are great. But in order to alter them on any other Microsoft program it helps if you convert it to a PDF first, and then convert further from there.
3. This pamphlet gives information on just the breeds listed above; one should take into consideration the location of their operations and the already existing factors of their herd before implementing such a plan.
4. In order to make this project even more useful one could show the potential of other crossbreeding possibilities, such as Hereford cross, Brahman cross, etc.

Conclusions

The conclusions that resulted from this senior project are listed below:

1. This senior project includes important breed information about Simmental, Angus and SimAngus cattle, which can be used when determining whether to crossbreed Simmental and Angus breeds.
2. It important to be maintain certain qualities within a beef herd in order to meet the needs of the industry, this project talks about the industry and informs its readers about what to look for in a successful beef herd/breed.
3. This pamphlet was produced electronically so that other beef producers with the same interest can easily have access to this information.
4. This project also shows those who read it, what to research when it comes to deciding which breeds one should cross in order to meet their goals or needs.

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