

## 2nd Fleckvieh Simmental Crosses Steer Evaluation Test

### Arroyo Malo 1995/1996

Asociación Civil Argentina de Criadores de Fleckvieh Simmental

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### Introduction

The Asociación Civil Argentina de Criadores de Fleckvieh Simmental performed its second cross steer evaluation test. It took place in Arroyo Malo, owned by La Tatabra S.A., located in Gilbert, Entre Ríos. This test was done with the technical support of INTA (National Institute of Farm Technology) in Concepción del Uruguay, of the judging department of the National Secretariat for Agriculture, Fishing and Food (SAPyA), the Cocarsa S.A. meat packing house, and Prinex S.A. plus the veterinary backing of the Biogenesis Sintyal S.A. Following the work that was begun in 1994, the technical objectives of this test were to evaluate the behaviour of four different genetic crosses of Fleckvieh Simmental and the breeding and fattening on grass, as well as the analysis of the carcasses at slaughter. Two purebred British breed steer groups (Hereford and Angus) participated in equal conditions as references (these breeds are typical of the region). A total of 115 steers (75 Fleckvieh Simmental crosses and 40 references) were fattened in Arroyo Malo over a 13-15 months period and were finally slaughtered at Cocarsa. The resulting cuts were exported to Europe within the Hilton cuota and also to Chile and Brasil. The information obtained in the various stages of the process is put forward in this paper. The published results has been analysed with the eye of a producer and might not follow strict rules of scientific investigation.

These results, as well as the results of the first test, continue to provide national information that can be considered as important. The productivity of the Fleckvieh Simmental crosses can, therefore, be analysed objectively after these tests ran in different environments.

### Materials

Origin and ownership:

The present test was done in Arroyo Malo, a cattle and agriculture farm located in Gilbert, Entre Ríos. The 115 participating steers came to the ranch in June of 1995 and all were bred by the following breeders:

- Colonia Centro S.A., "Rincón del Tala", Rosario del Tala, Entre Ríos
- El Macuco SA, "El Macuco", Los Charrúas, Entre Ríos
- La Federación Agropecuaria SA, "El Ñandubay", Gualaguaychú, Entre Ríos
- La Tatabra SA, "Arroyo Malo", Gilbert, Entre Ríos Genetics

The steers to be evaluated were classified in 6 different genetic groups, two of which were benchmark groups.

Group 1: 23 steers, Fleckvieh Simmental-Angus cross (50%)

Group 2: 29 steers, Fleckvieh Simmental-Hereford cross (50%)

Group 3: 15 steers, Advanced Fleckvieh Simmental cross (more than 75%)

Group 4: 8 steers, Fleckvieh-Brahman cross (50%)

Group 5: 30 steers, Pure Hereford (benchmark)

Group 6: 10 steers, pure Angus (benchmark)

The phenotypical classification of the calves was done by the breeders before weaning. This classification was

confirmed and/or modified by the Association breed inspectors before the beginning of the test.

## Test structure

All animals were kept under equal management conditions from the beginning. During a first step, called levelling, the animals were adapted to the new production conditions in order to eliminate or reduce the stress induced by the environment change and to adapt the digestive system to the new food. The second step, the test started immediately thereafter and was completed before transportation and slaughter. Levelling and adaptation period: June 3rd 1995 to July 7th 1995 Test period: July 7th 1995 to October 12th 1996 The animals were controlled in their monthly evolution through periodical weighing. These opportunities were also used to perform the veterinary treatments in the tests health plan. These weightings allowed the analysis of the weight-gains in weighted form, establishing the animals response in the form of daily gains as related to the food offer and the available environment. The end of the test was established through an evaluation of the subjective finishing of the steers (subdermical fat) with the advice of Dr. Horacio Avila of the "Judging Area" of the Secretary of Agriculture. Two shipments were made, the first one on August 5th 1996 and the second and final on October 12th of the same year.

It should be noted that this second shipment was delayed over 20 days because of market reasons affecting some of the results.

It should also be noted that the slaughter, which was made at "Cocarsa" was also delayed for 48 hours on the first shipment because of administrative problems, also affecting some of the results.

## Production - Environment

Management:

The test calves received a similar management from the first day, in the same plot, with the same food, water availability, etc. The sanitary treatments -vaccines, deworming - were also the same for all.

Nutrition:

The food received throughout the test was based on typical forage of the area.

In a first period, from July 7th 1995 to January 31th 1996, the steers grazed a second year pasture made up of festue (10 kg), lotus corniculatus (5kg), red clover (3 kg) and white clover (2 kg). The pasture offer had a beginning availability of 2 400 to 3 600 kg of dry material per hectar and was composed of 53-76% of legumes, 36-20% of graminous (?) and 11-4% of weeds. The quality of the available forage varied from 54-65% DIVNO (In vitro digestibility of organic material) and 14-19% PB (gross protein). In the second period, from January 31th 1996 to May 10th 1996, the animals grazed on grazing sorghum.

This period was extend to May 27th 1996 in a harvested grain sorghum. In the third period, from May 27th 1996 to the end of the test, the animals grazed winter oats. This was supplemented during two weeks with round bales of pasture, at a rate of 5 bales per week.

Grazing and meat production:

All the grazing was intensive. The instant plot loads were controlled through the addition of other animals during times of excess forage availability. The available pasture (40 ha) was divided in 11 plots which were grazed in periods of 3 to 10 days depending on the time of the year. The average animal load in the pasture (including the additional animals) was of 2.54 heads/ha (equivalent to 705 kg of live weight per hectare). This indicates that the meat production in the period was of approx. 350 kg/ha.

The grazing sorghum was divided in 10 plots with an average occupation of 7 days. The average load was of 4.65 heads/ha and the estimated meat production was of 138 kg/ha. The oats grazing was done during the daytime only.

Environmental conditions:

The regions normal climate is moderate and humid, but during the test suffered a long season of drought.

This resulted in a deterioration of the forage quality and quantity. Specifically the red clover was badly affected with very little summer development. Registered rain was the following: July 1995 - 15 mm, August - 0 mm, September - 27 mm, October - 112 mm, November - 152 mm, December - 35 mm, January 1996 - 37 mm, February - 0 mm, March - 108 mm, April - 157 mm, May - 25 mm, June - 37 mm, July - 0 mm, August - 10 mm, September - 32 mm.

Health:

The health of the test animals was controlled through a Preventive Sanitary Plan, developed by Dr. Jorge Lamberti of the "Biogenesis Sintyal SA". The plan was similar to the ones normally used in the area. Internal and external parasites were systematically controlled and no growth enhancing products were utilised (vitamins, supplements or anabolic). The treatments performed were the following:

- On arrival: Ivosint, IBR-BVD,
- July 20th 1995:
- October 28th 1995:
- February 4th 1996:
- March 19th 1996: foot and mouth vaccine
- June 8th 1996:
- September 25th 1996: Four steers died during the test, two of the test group and two of the benchmark group. The causes of death were mancha ? (2), intoxication (1) and accidental (1).

## Field Results. Discussion

The results obtained in the fattening process can be qualified as very good.

The statistical analysis of the results was done via daily weight gains estimated through lineal regression for each animal for the period July 7th 1995 to August 5th 1996, when the first shipment was made. The comparison between the different genetic groups was done through a variance analysis (completely random design) using the General Lineal Model procedure of the Statistical Analysis System and the medians were compared through the Duncan Test (alpha equal 0,05). Table 1 shows the differences between the genetic groups, which were highly significant ( $p < 0,001$ ). The genetic groups, which included Fleckvieh Simmental blood did not differ amongst themselves in growth rates but exceeded significantly the British breeds. Analysing each of the genetic groups it can be observed that the Fleckvieh Simmental cross steers had a weighted average daily gain of 611 grams per day or a 13.57% improvement to the benchmark steers. The live weight gain showed a difference between the two groups of 40.2 kg comparing the Fleckvieh Simmental crosses to the Angus-Hereford reference steers.

Statistically no significant differences could also be established between the British crosses and the Brahman crosses.

The FS x Hereford group had the highest outgoing weight (507.6 kg) and the best weighted daily gains (618 gr/day). This apparent advantage can be questioned considering that this group had a higher age at slaughter (2.41 teeth). The Brahman crosses had a very acceptable performance again, both in growth and finish. This group was the youngest at slaughter (0.5 teeth) and achieved a daily gain of 614 gr/day (+ 14.13% with respect to benchmark groups) with a final weighted average weight of 475.8 kg. The FS advanced crosses behaved satisfactorily as far as weight gains but were slower in finishing as proven later at slaughter. The Angus crosses, while showing good finish, were slower. Only 35% of these steers left in the first shipment while 65% left in the last shipment. The outgoing average weight was 481.3 kg, only 11.9 kg more than the pure Angus benchmark steers. The British reference steers showed a very good daily gain for the area (533 gr/day) but were nevertheless inferior in growth capability under equal field conditions.

Table 1a. Group 1: Period from July 7, 1995 to August 5, 1996

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Group	Number of Head	Weight Gain (kg/Day)	Total Weight Gain (kg)
FS x Hereford (50%)	28	0.618 a	264.8 a
FS x Brahman (50%)	8	0.614 a	252.4 a
FS Advanced cross (75%)	14	0.611 a	252.3 a
FS x Angus (50%)	23	0.602 a	244.2 a
Average FS Crosses	73	0.611 a	254.6 a
Hereford	28	0.540 b	212.9 b
Angus	10	0.533 b	218.5 b
Average British Breeds	38	0.538 b	214.4 b
C.V (%)		11.9	12.3

Table 1b. Group 2: Period from July 7, 1995 to October 10, 1996

Group	Number of Head	Weight Gain (kg/Day)
FS x Hereford (50%)	3	0.619 a
FS x Brahman (50%)	3	0.612 a
FS Advanced cross (75%)	5	0.650 a
FS x Angus (50%)	15	0.596 a
Average FS Crosses	26	0.610 a
Hereford	28	0.540 b
Angus	5	0.546 b
Average British Breeds	33	0.541 b
C.V (%)		10.4

With regards to finishing speed (fat) all animals with Hereford blood finished first. The finishing times were:

1st shipment 2nd shipment

	1st shipment August 5th 1996	2nd shipment October 12th 1996
FS x Hereford	85.7%	14.3%
FS x Brahman	62.5%	37.5%
FS x Angus	34.7%	65.2%
FS Advanced	64.3%	35.7%
Hereford	0.0%	100%

Angus	50%	50%
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In conclusion:

of the test results and comparing the benchmark pure British breeds with the FS crosses, the biggest and most evident differences result comparing the Hereford group with the FS x Hereford group: the crosses had a weighted average daily gain 14.4% higher with a live weight increase that was 24.476% better.

This is attributed to hybrid vigour and to the complementation between paternal breeds.

Also significant was that 85.7% of the FS x Hereford steers finished first (13 months). Meanwhile, 100% of the pure Hereford benchmark steers needed more time to finish (15 months) reaching that condition with a live weight 49.3 kg lower than the crosses.

## Carcass Evaluation

The carcass evaluation at slaughter and further cutting was done by Dr. Horacio Avila at Cocarsa SA. The slaughter results were partially distorted by administrative problems. The first steer shipment (August 5th 1996) waited for 48 hours with water and no food, resulting in lower yields.

The comparative analysis of the differences between the various genetic groups lead to the following comments:

1. The average age of the Simmental crosses was lower than the benchmark steers, while the youngest were the FS x Zebu crosses.
2. The average weights of the cross-bred carcasses were higher than the benchmark carcasses by more than 5 kg (lower age plus higher weight).
3. Continental crosses also showed a better muscular yield and therefore better commercial value.
4. The carcass classification system in Argentina is basically descriptive and it's made up of 7 letters to describe carcass conformation and 5 numbers that define the fat content

JJ: superior N: regular 0 = lean,

J: very good T: inferior 1 = little fat,

U: good A: bad 2 = moderate fat,

U2: average 3 = high fat,

4 = excessive fat

5. Conformation. The analysis indicates that there is a similar number of JJ carcasses between the crosses and the benchmarks. Extending the comparison to the J carcasses, the crosses take the lead (32% versus 6%).

In conclusion and according to the experiences of this test, with cross-breeds you may obtain higher weight steers with higher yield of meat at a lower age.