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"ON-FARM" BEEF AND DAIRY PERFORMANCE TESTING PROGRAMS IN THE VIRGIN ISLANDS

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ABSTRACT

Beef and dairy cattle production, like any other agri-business enterprise, has to justify its existence by making a profit. This has led to an increased dependence on management decisions based on sound, accurate, useful and timely records. The Virgin Islands Beef Cattle Improvement Program (VIBCIP) and the Virgin Islands Dairy Herd Improvement Program (VIDHIP) provide the farmer with the necessary tools to get the maximum return on his investment in his livestock enterprise by identifying the most profitable animals.

The VIBCIP has contributed to the increase in the average weaning weight of calves from 450 lbs. in 1979 to 505 lbs. in 1987. It has also aided in the sale and exportation of quality breeding stock to the United States, Central and South America and the Caribbean. The VIDHIP has helped to increase the rolling herd average of its members from 7,000 lbs. in 1982 to 8,500 lbs. in 1987.

INTRODUCTION

Techniques for selection and improvement of livestock are normally tested with great efficiency and control. However, low-input or small-scale farmers often find promising research results difficult to apply. Research and Extension programs have often found that farmers face practical and economic constraints making adoption of apparent "improvements" impossible or unprofitable.

Efficient operation of any business today requires comprehensive and accurate records. Beef and dairy production, like any other agri-business enterprise, must make a profit. This has led to increasing dependence on management decisions based on sound, accurate, useful and timely records. Two record-keeping programs were introduced to Virgin Islands livestock producers in the latter 1970's. These are the Virgin Islands Beef Cattle Improvement Program (VIBCIP) and the Virgin Islands Dairy Herd Improvement Program (VIDHIP). These programs provide farmers the necessary tools to maximize returns on investment in their livestock enterprises by identifying the animals that are the most profitable and targeting all the poor producers.

Virgin Islands Beef Cattle Improvement Program

The Virgin Islands Beef Cattle Improvement Program (VIBCIP) was established in 1976 as part of the Senepol Research Program of the University of the Virgin Islands Agricultural Experiment Station. It was designed to help characterize the Senepol cattle under Virgin Islands conditions. The VIBCIP is a member of the National Beef Cattle Improvement Federation. Today, the program is run by the Cooperative Extension Service and is available to all local livestock producers, regardless of breed of cattle (straight- or cross-bred) or number

of head owned. The membership in the program has increased from four farms at its inception to seven at the present time. The number of cattle in participating herds ranges from ten to one thousand. The program has access to a livestock specialist, who acts as coordinator and educational advisor, and an extension agent, who collects field data and processes it.

The VIBCIP is based on the proven fact that research has proven the majority of economically important traits, or characteristics, are highly heritable, which means that they are readily transmitted from parent to offspring. Genetic progress toward an economically influenced goal can easily be made by the farmer by selecting for heritable traits such as birth weight, mothering ability, yearling weight and feedlot weight gain. The VIBCIP helps the beef producer to identify animals superior in these traits and thus assist him in making the necessary selections. It does this by providing the producer with computer processing of birth, weaning and postweaning records, official grading and scoring of all animals, and yearly summary records which include a complete herd inventory.

A producer who is interested in the VIBCIP is initially given an overview of the program and full use of the available records before he officially joins. The only requirement for membership is for the farm to have adequate holding facilities to work the cattle and a way of identifying each animal. Because of the limited resource of many farmers, the VIBCIP provides a field technician who helps in animal identification. The VIBCIP also provides the equipment and technician to tag, tattoo, and hot-brand the members' animals. The producer is only required to purchase his own eartags and the propane gas for the branding iron heater. Producers are encouraged to identify their own animals if possible and are instructed in the proper techniques of identification if they have the desire, but lack the knowledge to do it themselves. The program also has its own portable cattle scale and chute that is used to restrain, weigh and score animals at producers' farms where such facilities are not available.

After the producer's herd has been enrolled, he receives a listing of his cows to enable him to enter the calving information of each cow. This information is returned to the VIBCIP office at the Virgin Islands Cooperative Extension Service and is entered into the computer system.

Calves normally are weighed when five to eight months old. This is for the Adjusted 205-day Weight calculations. The age range for this calculation is from 160 to 250 days of age. Animals weighed outside of this range are scored as being irregular young or irregular old, because the adjustment factors are not as accurate for animals in the extremes. This information then becomes part of the animal's permanent record.

At the time of weighing, the field technician arrives at the producer's farm and weighs, scores and records data on all calves, using the Virgin Islands Agriculture Experiment Station Animal Science Field Weighing/Grading Sheet, as shown in Appendix 1. Also weighed at this time are the dams (mothers) of the calves. This weight is used to calculate the Cow Efficiency, which allows the producer to know which cows are doing the best job of raising their calves.

The collected information is then taken to the VIBCIP office where it is

entered into the computer and processed. The results processed from this data are commonly called the "Weaning Performance" although the true weaning of the calves is often done from 1-3 months after this time, when the calves are permanently separated from the dams. Weaning Performance records comparing each calf to the parents are generated and given to the producer for preliminary selections, especially in the area of cow evaluation. Since weaning weights are only moderately heritable (30%) the producer is advised to wait for the yearling summary to make his decisions on the calves. If there is a difference between the time of first weighing and separation, a weight is also taken at the time of separation and entered into the calf's permanent record.

Yearling Weights are the next to be taken on the calves. They are used to evaluate the performance of the individual on its own and without the influence of the dam. Yearling weights may be taken at either 12, 15 or 18 months of age (365,452,or 550 days of age, respectively) depending on the feeding level and sex of the animal. In the Virgin Islands, animals are normally split into two groups - bulls and heifers. This is done because bulls mature and gain weight faster, reaching a slaughter weight earlier than heifers. It is preferred, therefore, to weigh the bulls at 12 - 13 months of age, while the heifers are not usually weighed until 18 months of age. However, to gain a true picture of the performance of an animal on its own, the postweaning time period must not be shorter than 140 days. Some producers also feel that the animals are not mature enough at 12 months to make accurate selections. For these reasons, combined with the fact that many of the animals in the Virgin Islands are weaned at an older age, producers often choose to have the bulls weighed at the 15 month (452 day) age for the postweaning test. After the data is received, it is processed and a cumulative (both weaning and yearling) performance summary is generated to assist the producers in making their selections.

Most animal selection is done at the time of yearling weighing. The growth rate of the calf after weaning is a good indicator of the animal's individual performance, while the pre-weaning growth rate is heavily influenced by the mothering ability (milk production) of the dam.

Animals that have above average yearling weight ratios (animal weight compared to the weight of the group) are identified as possible replacements. Above average ratios are those that are above 100. Heifer selection is more critical than the selection of bulls since a constant number of females are required as replacements to keep the business operating. Poor females are therefore ruled out as possible replacements in the herd.

At the beginning of each year, each member is given a herd inventory so that he can update his herd. The producers provide the VIBCIP with information and dates on inactive animals (those sold, dead, or transferred) and any animals missing from the inventory. A copy of the updated inventory listing is then returned to each member along with pre-listed calf data sheets and the cow/calf and cow listings.

V.I. Dairy Herd Improvement Program

The VIDHIP was initiated in 1979 to help boost milk production in the Virgin Islands. Presently, there are six dairy farms in the Virgin Islands, five on St. Croix and one on St. Thomas. Whole milk is the only agricultural product in the U.S Virgin Islands for which local supply nearly meets demand. The VIDHIP operates as a cooperative effort of dairymen (Dairy Herd Improvement (DHI) association members), the University of the Virgin Islands (UVI) Cooperative Extension Service and UVI Agriculture Experiment Station.

The objective of the VIDHIP is to provide a uniform, accurate, organized recordkeeping system which is useful in dairy herd management, selection of superior animals and genetic evaluation of sires (bulls). It is also very useful in research and education. The VIDHIP is run by the V.I. Dairymen's Association, Inc. This organization presently operates as an Extension educational demonstration project to encourage all dairymen to adopt herd improvement practices. A dairyman must be a member of the V.I. Dairymen's Association to enroll his herd in the VIDHIP. At present, all dairymen on St. Croix are members in the V.I. Dairymen's Association and the VIDHIP enjoys a 60% enrollment. The V.I. Dairymen's Association is responsible for the business aspects of the organization and pays all processing fees. The Extension Livestock Specialist and Extension Agent - Dairy, act as Ex-officio members. Due to the limited resources of the Virgin Islands farmers and the low number of dairies in the Virgin Islands, the Cooperative Extension Service's Dairy Extension Agent also acts as the VIDHIP supervisor.

The VIDHIP supervisor prepares a schedule for testing of each herd each month. Testing is done during the evening milking and the following morning milking. On test day, the supervisor arrives on time for the evening milking. She identifies each cow as the cow enters the milking parlour, then weighs and records the amount of milk that the cow gives. This is done for all cows being milked that day. Then she obtains data on the feeding of forages and grains, the amounts fed, breeding and calving dates and other management information. In addition to this, she ear-tags and tattoos calves that have been born, and identifies new heifers that have entered the herd since the last testing day. The supervisor does not take milk samples for a butterfat test or mastitis test since the dairy processing plant on St. Croix provides this service to the Dairymen's Association. However, when milk production is low or at the request of a farmer, a mastitis test is done and results forwarded to the farmer. The supervisor then records all information collected on the test day on the Barn Sheet - DHI 201 and the Herd and New Cow Data Sheet - DHI 213. After double checking all of the reported information for accuracy, it is sent to the Regional DHI Processing Center in Raleigh, North Carolina where the records are processed and copies returned to the Extension office and the farmer. The Center also sends a Monthly Report - DHI 200 and a Herd Summary Report - DHI 202 to each VIDHIP member. The monthly report includes:

(a) Milk production for each cow for the past month and total since the start of her lactation.

(b) Breeding dates of each cow and when she is due to freshen (calve).

(c) Most recent 305-day estimation and last completed lactation yield.

(d) Ranking of cows in the herd according to production.

(e) Yearly and monthly management factors of the herd.

(f) Rolling (all cows on farm) yearly herd average and daily herd average each month.

(g) Projected mature equivalent, 305-day estimation after 50 days of lactation to estimate 10 month production of each cow in the herd.

(h) Value of product, monthly and yearly, for each cow in the herd.

(i) Income over feed cost for the herd.

The herd summary gives an overall assessment of the herd situation. The information in this summary also shows the VIDHIP member the average daily and yearly production for certain production and feeding items. Other items include a reproductive efficiency summary and general management information which allows the VIDHIP member to note positive and negative changes in the herd in response to changes in environmental conditions or herd management. A copy of the Herd Summary report is also given to the livestock specialist. When the reports are received, the VIDHIP member meets with the Extension Livestock Specialist who helps him interpret the records and use them to make management decisions.

The VIDHIP also assists its members with feed evaluation and testing. A feed sample is normally taken by the VIDHIP supervisor at the request of the member and it is sent to the laboratory for analysis. These results are given to the member and he is helped with the interpretation.

CONCLUSION

The VIBCIP continues to help farmers maintain the quality of the Senepol breeding stock. The average weaning weight of calves involved in the program has increased from 450 lbs in 1979 to 505 lbs in 1987. The VIBCIP has aided in the shipment of some of the quality breeding stock to other parts of the world and has contributed to the viability of beef production as an agriculture industry in the Virgin Islands.

The VIDHIP, on the other hand, has contributed to an increase in the rolling herd average in the Virgin Islands from 7,000 lbs. in 1982 to 8,500 lbs. of milk produced in 1987. Overall, the calving interval has been reduced by almost four months to a 14 month average and the percent of cows in milk has been increased from 55% to 80% at the present time.

The VIBCIP and VIDHIP continue to inform the island farmers on the latest in livestock management techniques and offer well-attended seminars, workshops and demonstrations to disseminate this information.

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Appendix 1

Sample of the field weighing and grading sheet used in conjunction with the performance testing program

VIRGIN ISLANDS AGRICULTURAL EXPERIMENT STATION
ANIMAL SCIENCE FIELD WEIGHING/GRADING SHEET

PAGE

STATION. DATE PROJECT RECORDER

I.D NO.	SIRE I.D. NO.	COW I.D. NO.	COW WT.	SEX	AGE BIRTH DATE	WEIGHT	LENGTH	HIP HT	HKS PINS	TEMPER	COLOR	HEAD CON	HEAD SHP	SCUR SZ	BUMPS	SHEATH	COND	FRAME	PURITY	COMMENTS

Temper = Relaxed, Uneasy, Nervous; Color = Light, Medium, Dark; **Head Con.** = Polled, Scurred, Horned, **Head Shp.** - 1 = **Flat**, 2 = **Round**, 3 = **Pointed**, 4 = Extremely pointed; **Scur Sz.** - 0 = None, 1 = Scab, 2 = < 2 in., 3 = > 2-4 in., 4 = > 4 in., 5 = **Removed**; **Bumps** = Yes, No; **Sheath** = Tight, Medium, Loose, Cond. - 9-11 = Average, **Frame** - 1 = **Small**, 5 = **Large**; **Purity** - OC = Off Color, NR = No Register.