

Research is continuing in this area with further studies on hay quality and the physical form of the hay being fed in relation to animal performance.

THE EFFECT OF WINTER GAINS ON SUMMER PERFORMANCE

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Weaner calves wintered on meadow hay without supplementation make little or no gain. Feeding of 2-3 pounds of a protein-energy supplement will produce 1-1.5 pounds per head per day. Because of the concern over the effect of level of winter gain on summer gain, Castle, Wallace, and Bogart published an Oregon State University Technical Bulletin #56 in 1961. They concluded that the optimum economical feeding rate for wintering weaner calves to go on range the following summer was 1.66 pounds per day. Range supplements were not included in these evaluations.

The study reported here was designed to determine the influence of several rates of winter gain on performance of steers on summer range forage while receiving supplement.

EXPERIMENTAL PROCEDURE

Steers used during the summer phase had been on several different experiments and treatments during the winter. The winter studies involved four levels of nitrogen and two levels of energy all with and without the addition of trace minerals. Some steers were on a study involving different kinds and qualities of hay. The treatments were designed to give gains ranging from 0.50 to 1.75 pounds per day during the winter. The animals used in this study were the same group used to evaluate implants and all received summer range supplements.

All animals were handled in essentially the same manner, both winter and summer, except for the supplemental regimen or implant. Individual shrunk weights were taken every 28-days in all studies.

Linear regression analysis were made on the following comparisons; individual winter daily gain compared to summer daily gain; winter gain by lot compared to individual summer daily gain; initial summer weight compared to summer daily gain; and the final summer weight was compared to winter daily gain.

RESULTS AND DISCUSSION

The individual daily gains in the winter varied from 0.41 to 1.79 while the gains during the summer ranged from 1.81 to 5.13 pounds per head per day. Figure 1 shows the relationship between winter and summer daily gain. Within the units of this data no correlation existed between winter and summer daily gains. Figure 2 shows the relationship between final summer weight and winter daily gain. The lower line is weight at the end of the winter. This line was calculated using a 400 pound calf starting weight with 150-day winter using the respective daily gains shown on the graph. The upper line is final summer weight compared to the

daily winter gain. Because these lines are parallel and do not converge at higher weights of winter gain, a compensatory effect, within the limits of these data, was not apparent.

Perhaps if the winter gain had been lower, which would mean a less than full feed of meadow hay in this condition, some compensatory effect would have expressed itself. Also, perhaps if the winter gain had been higher than 1.75 pounds per day a depression in summer gains might have been shown. It appears that if animals are fed within the ranges of these winter gains and given the chance to gain their maximum during the summer a relatively high rate of gain in the winter will have no effect on the summer gain.

CONCLUSION

It appears from these data that if an animal is fed to gain approximately 0.50 to 1.75 pounds per day in the winter summer gains will not be effected provided the animals gain at a maximum rate. This also confirms that the ability of animals to gain is more of a function of genetic potential than feeding history, within the limits of normal growth. The high costs of interest, taxes, and other fixed investments make it desirable to allow an animal to gain at a maximum rate from the time the animal is born until it is finished for slaughter. Generally speaking the high rate of gain is the most economical and it appears that a fairly high rate of gain during the winter will not effect the summer gains which would shorten the overall time for the animal to reach slaughter grade.

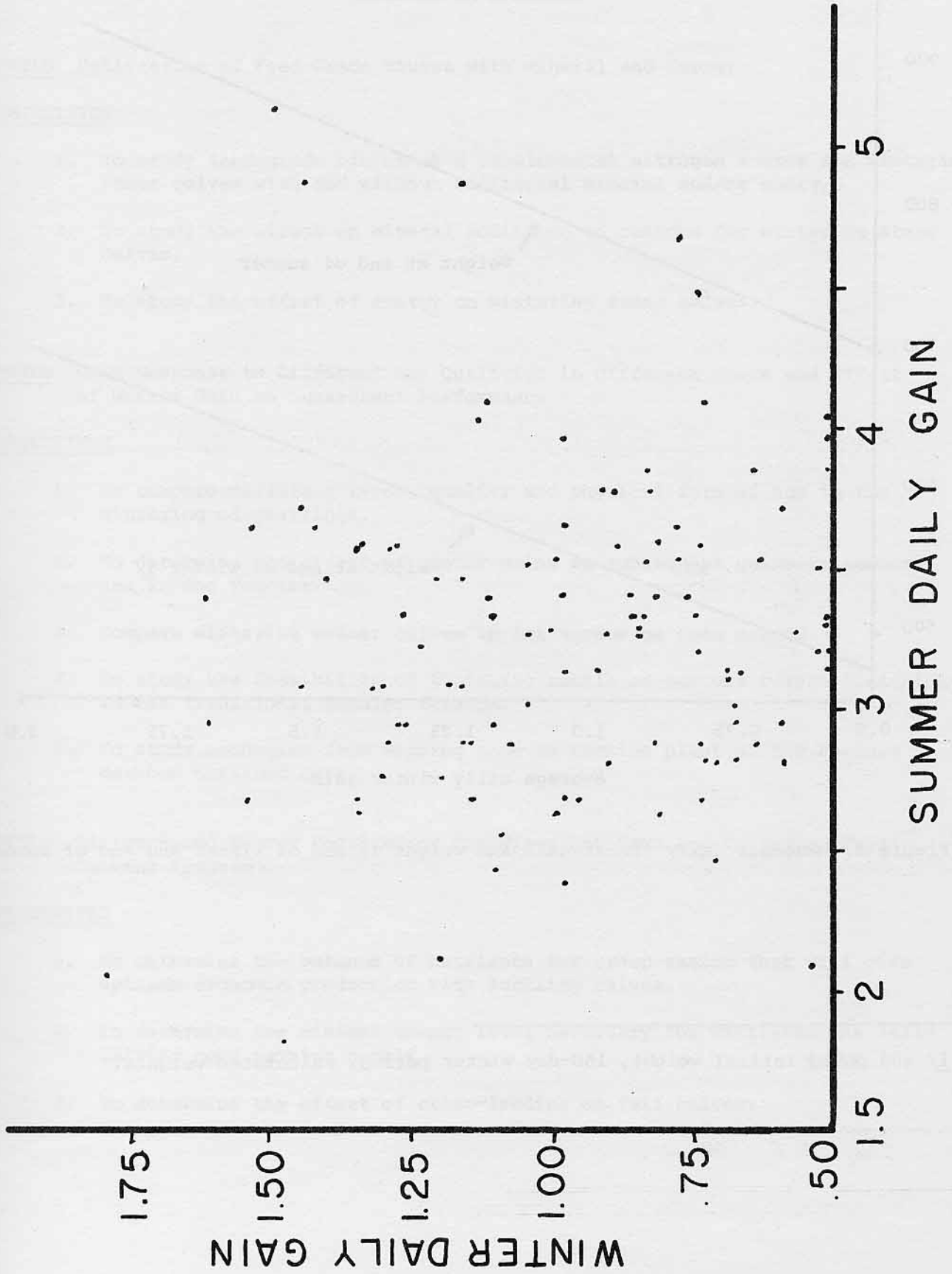


Figure 1. Effect of winter daily gain on summer daily gain.

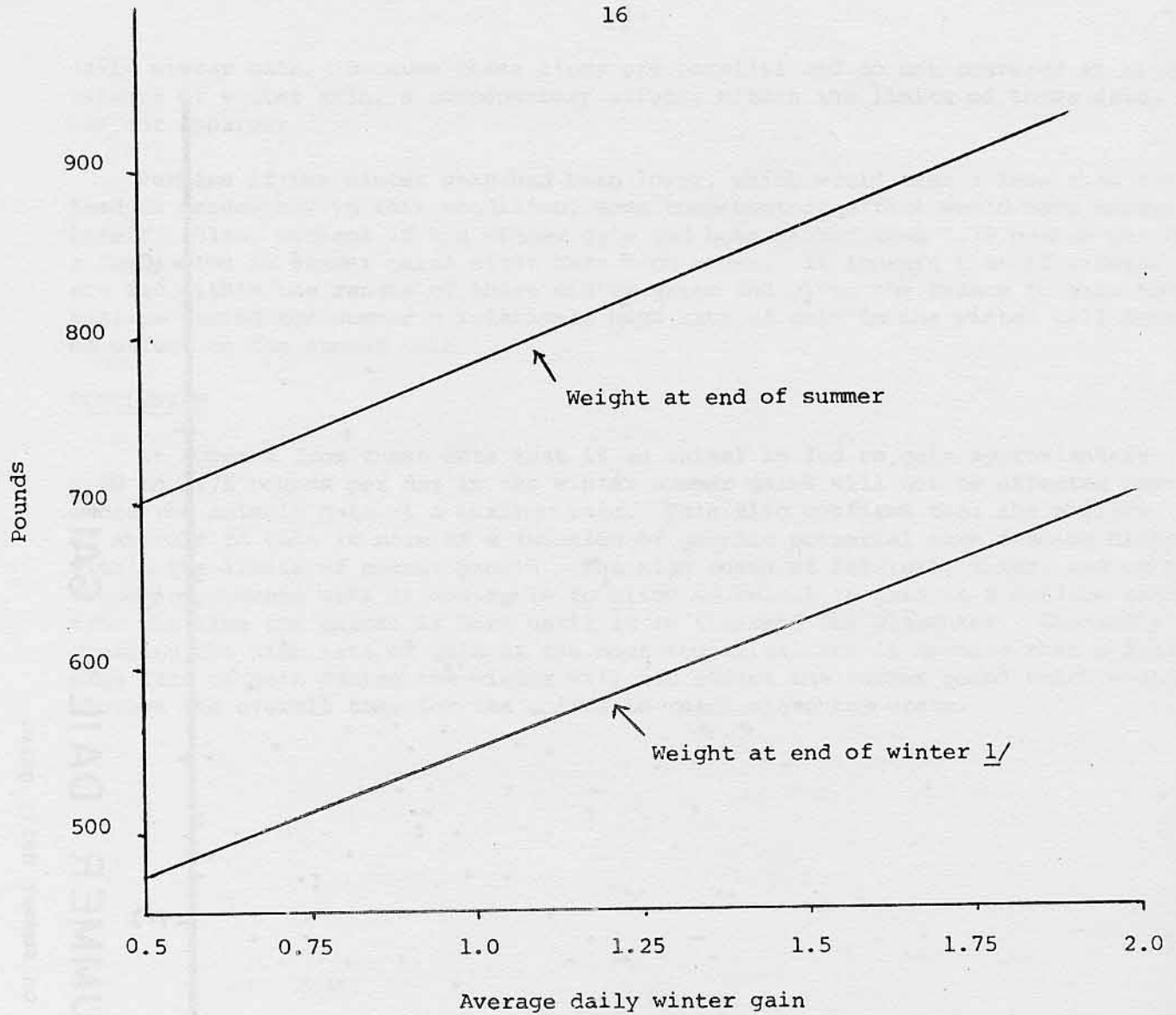


Figure 2. Average daily winter gain and weight at end of winter and end of summer

1/ 400 pound initial weight, 150-day winter period, calculated weights.