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PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

PASTURE FENCING NETWORK DESIGN

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INTRODUCTION

The objectives of pasture management and the principles of pasture utilisation are discussed in previous leaflets of this series (Natal Pastures Leaflets 3.1 and 3.2). This leaflet, on the practical application of pasture utilisation, will cover the basic concepts of fence network design that are required to achieve the objectives of pasture management, and to apply the principles of pasture utilisation when pastures are grazed rotationally.

Since every farmer and every farm operation is unique, there is no single "recipe" that is applicable to all situations. This is especially so for fence network designs. The suggestions made must therefore be tailored, or adapted, to suit the needs of the individual farmer or farm operation.

BASIC REQUIREMENTS

Certain basic criteria must be met for the fence network to be effective and economical.

- The fence network must be **simple**, efficient and practical. Once operational it must reduce the management input of the farmer, not increase it.

- The fence network must become a management tool to be used by the farmer to improve both the quality of herbage on offer to the livestock and the utilisation of the herbage offered. It must **reduce wastage** of herbage by controlling soiling and trampling by livestock. It must **eliminate back grazing** and the grazing of regrowth until the farmer has decided that the pasture has regrown sufficiently to be grazed again. Ideally, no more than three days should elapse from the time animals enter a given area, utilise all the herbage that is available and are removed from that area.

- The fence network must be able to effectively control at least three separate groups of animals while simultaneously giving the farmer the flexibility to "speed up", "slow down" or even "remove" areas from grazing. In this way the farmer can adapt the grazing cycle to the faster or slower herbage regrowth rates experienced during the season.

- Should the area under consideration be under irrigation, then the fence network must be compatible with the design of the irrigation scheme. It is far easier to adapt a fence network design to suit an irrigation scheme than *vice versa*.

ACHIEVING THE BASIC FENCE NETWORK REQUIREMENTS

Taking the above four criteria into account, it will soon be realised that the best, easiest and most cost-effective way to achieve these goals is to make extensive use of good electric fencing. Electric fencing is reliable, extremely adaptable and versatile, and highly cost-effective, provided that it is installed properly and used correctly. Electric fencing that has been constructed using low quality equipment, or a fence that has been poorly erected, is both a liability and a curse.

Electric fencing, *per se*, is discussed in detail in another leaflet in this series (Natal Pastures Leaflet 3.4).

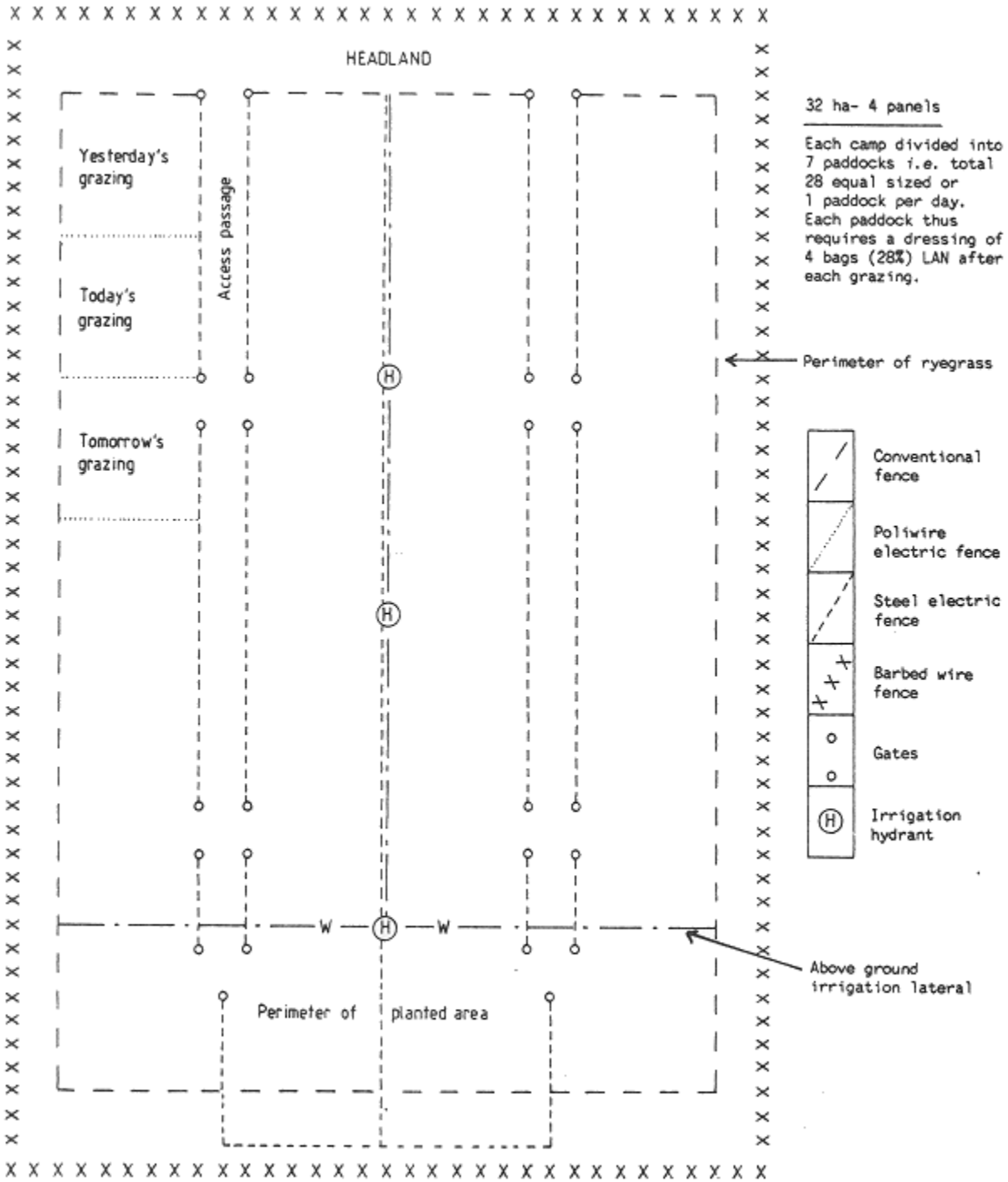
SUGGESTED PLAN FOR FENCE NETWORK DESIGN

A suggested plan of a fence network design which meets the four basic criteria, discussed earlier, is shown in Figure 1.

With reference to Figure 1 the following points should be noted.

- The entire productive cultivated area (*i.e*. excluding head-lands, "dead" spots *etc*.) is divided into four equal panels using permanent/semi-permanent electrified steel wire fences. Each panel is further subdivided, with poliwire electric fencing, into seven equal-sized "temporary" paddocks. This results in 28 equal sized paddocks of known area. The advantage of equal sized paddocks cannot be overstressed. The same length of time should be required to utilise each of the 28 paddocks. Should any variation occur, investigation for the cause of the variation can commence immediately. Also, the same amount of fertiliser is applied to each paddock as soon as the animals are removed. This obviates confusion about the number of bags of fertiliser that should be applied. Furthermore, each camp gets the correct amount of fertiliser.

Figure 1: Plan of suggested fence network design



Not to scale

- By having 28 equal sized paddocks there is a "built-in" measure of how slowly or rapidly the available herbage is being depleted. Timeous changes in the grazing cycle can be effected to ensure that the animals return to herbage that is at the correct growth stage and height for maximum utilisation and minimum wastage. It is important to remember that the slower the growth rate of the pasture, the longer the period of absence should be and therefore the slower the grazing rotation should be.

- Gates in the two access passages provide access to any part of the area without trampling ungrazed or regrowing herbage. Gate and passage widths are the same (5,0 m), thereby allowing the gate to be "closed" across the passage and thus automatically forcing animals into the desired paddock. Water and lick troughs can be sited in the passages. A further advantage of the two access passages is that a minimum area of pasture is lost to grazing. The area occupied by the two passages is more than compensated for when compared to the losses that would be incurred by animals trampling ungrazed pasture, had no passages been provided.

- Any number of separate groups of animals can be controlled simultaneously, merely by making use of one more reel of poliwire and one more set of tread-ins per group.

- The minimum amounts of steel wire, poliwire and tread-ins are required in the design illustrated in Figure 1. This means that relatively large,uninterrupted panels running parallel to the irrigation dragline laterals can be traversed by farm machinery without having to remove fences or pipes. It also forces the farm labour to remove and count all the reels and tread-ins every time the livestock are moved. Tread-ins and reels can cause expensive machinery repair bills if inadvertently left in the land and mown, forage harvested, or combined.

  Entire panels, or parts thereof, can be "removed" from the rotation cycle for use by other livestock, or "closed off" for foggage during periods of fast growth. With Italian ryegrass such an area could even be used for seed production, provided the appropriate registration procedure has been followed. Any changes made to part of the area, or network, do not have any detrimental effect on the remainder of the area, thus emphasising the flexibility of the design.

- The network design is fully compatible with the designed dragline irrigation system. Take-off connections to portable drinking troughs can be attached to the irrigation line, provided no fertiliser is applied through the irrigation system, thereby solving the stock watering problems normally encountered when increasing the number of paddocks in a system.

- While not essential, it is suggested that, for ease of management, paddocks be shaped in such a way that they are twice as long as they are wide. This merely simplifies subsequent management when the stage is reached that instead of allocating one day's grazing at a time, the fence is moved three times during the day (*viz*. morning, afternoon and night). This ensures more efficient use of the available herbage.

CONCLUSION

In conclusion, it must be stressed that while no single "recipe" is applicable to all situations, the farmer must realize that whether or not he makes optimum use of the herbage available to him, the costs of producing the herbage remain the same. Good, efficient management is, therefore, the difference between profit and loss, and consequently, success or failure.