An Appraisal of the "Partial-Hygiene" Dairy Program

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The partial-hygiene program has been "on trial" in our dairy industry for over a year, and I believe we can now offer some appraisal.

In very brief review, this program is an effort to decrease bacterial numbers on the udder and teat surfaces, distal portion of the teat canal and on milk contact surfaces. Also, through therapy, to achieve sterilization of the glands of all individuals within the herd. Briefly described, these include:

1. disinfection of milkers' hands
2. udder washing and disinfection
3. teat dipping after milking
4. treatment during the dry period.

We have employed these techniques for 12 months in our herd of 120 Holstein cows. However, we did not in fact achieve disinfection of the milkers' hands. Rubber gloves were not used and the constant exposure to sanitizing solution in the disposable wash cloths was the extent of the disinfection. We did dip the teats with a "tamed iodine" preparation for ten months. We have also been treating all cows during the dry period.

There is agreement that teat dip preparations should:

1. have **bacte**ricidal properties and retain residual **activity for** several hours.
2. be **compatible** with the teat tissue.

After **prolonged** use we determined that the bactericidal properties were adequate, but that within certain "parameters" of normal management some of the currently used teat dip materials *could* be injurious to the tissue in the area of the orifice. Classification of the teat ends of 120 cows disclosed nearly 90% with some describable lesion. Most especially, the normal sebumlike material lining the teat canal appeared to be keratinized and proliferative. One can almost imagine the rosette configuration of the canal when closely observing this tissue!

In the course of the two preceding months the milking management practices had been altered for the good, but at this time the immediate cessation of teat dipping was the most abrupt change undertaken. Within five days, this proliferative tissue could be "lifted off" the teat end.

In recent conversation and correspondence with people more "expert" than ourselves, we have been convinced that there is no normal flora of the bovine gland. However, to retract just a little—we can continue to contend that there is a normal-abnormal flora.

This is important.

Any bacteria present in the gland increase the leukocyte counts and depress milk secretion. A close perusal correlating Wisconsin Mastitis Test scores and milk production curves revealed that cows shedding leukocytes at levels between 100,000 and 300,000 per ml. averaged a three pound greater deviation in milk flow than cows averaging under 100,000 per ml. A correlation of W. M. T. scores and culturing on blood agar plates revealed that cows shedding leukocytes at levels under 100,000 were virtually sterile in the character of their glands. Animals shedding higher levels of leukocytes harbored a variety of organisms. The counts ascended with the expected pathogenicity of the organisms. *Streptococci agalactiae* pushed the composite counts to 500,000 and above even when only one quarter was infected.

Further analysis revealed that a troublesome incidence of Coliform infections occurred in animals with previously low levels of leukocytic infiltration.

The leukocytes serve as part of the mechanism of defense; it appears that these levels can be reduced to such low numbers that invasion of the gland by severely pathogenic organisms is more easily accomplished. The presence of certain organisms such as the *Micrococci*, some of the *Corynebacterium* species and *Lactobacilli* may be resident in the gland and elicit higher than "normal" leukocyte counts. Coincidental with these higher counts, even between 100,000 - 300,000, milk secretion is depressed. But the defensive mechanism is elevated!

Sterilization of the glands will eradicate these organisms, decrease cell counts and enhance increased milk secretion. And the defensive

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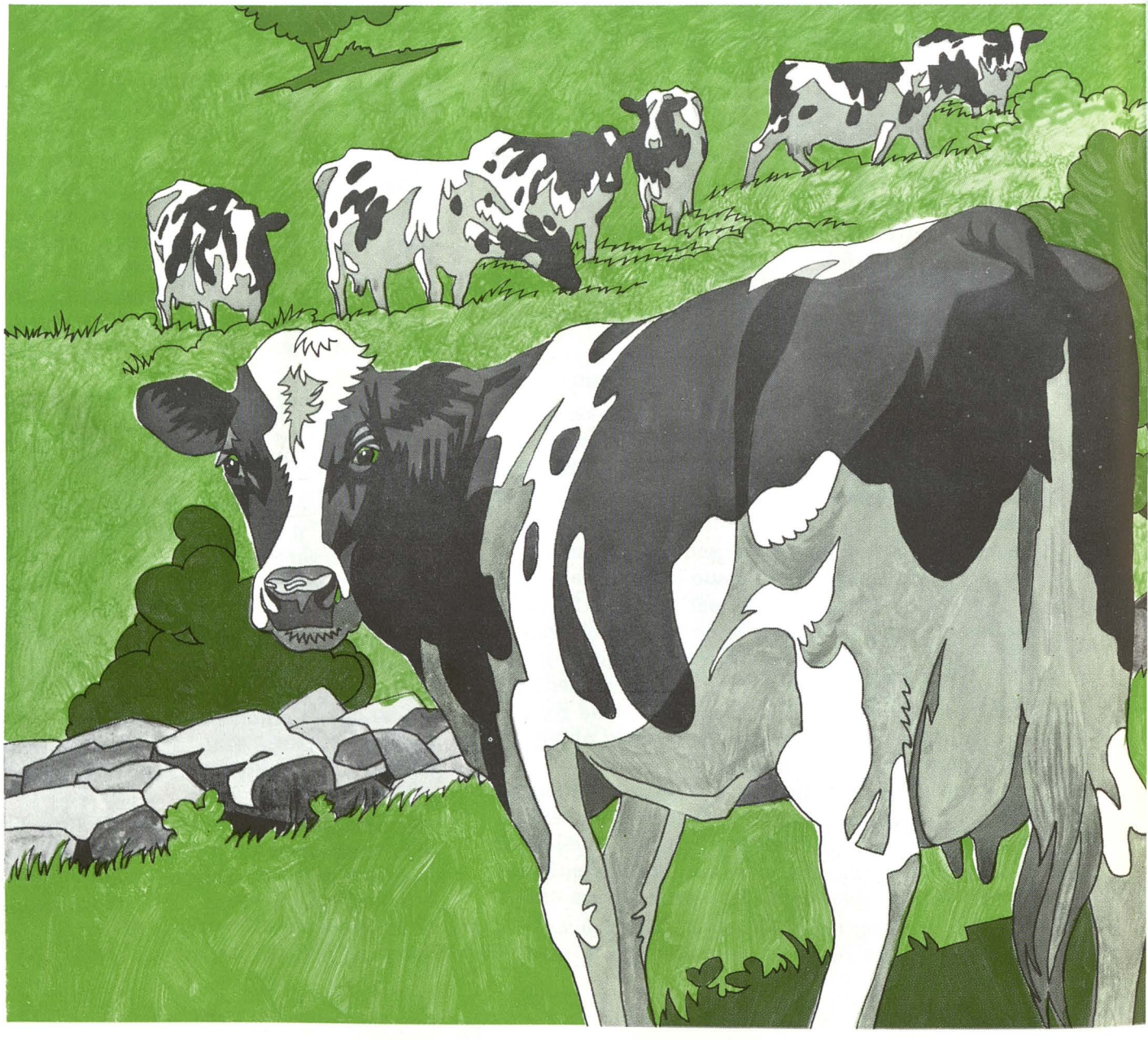
bring her back to productivity



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