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FECAL ANALYSIS – GRAZING MANAGEMENT TO CONTROL INTERNAL PARASITES (PART III)

It is now time to make a holistic evaluation of your meat goat herd management techniques and production operation. Having gotten this far, your quality of life, landscape and production goals have been stated and objectives to attain those goals have been defined. To fully incorporate holistic management, the ecosystem foundation blocks, and tools and guidelines to attain your stated goal must be understood. What am I saying? The internal parasite infestation problem goes far beyond the immediate present - the CAUSE of the problem must be resolved, not just treatment for the EFFECT!

This leads into a discussion of grazing management utilizing livestock species diversification, intensive grazing management and range and brush land management. Decreasing internal parasite loads and stimulating the immune system while enhancing land productivity through the use of livestock is a management goal.

An understanding of parasite biology is needed or all else fails. There are three major groups of internal parasites; nematodes (roundworms), cestodes (tapeworms) and trematodes (flukes) and each expresses itself differently. For example, in wet, temperate environments (Haemonchus contortus), cooler areas (Ostertagia) or heavy rainfall areas (Lungworms and possibly Flukes). Each individual internal parasite has a complex life cycle affected by climatic change, topography, geography and animal specie involved. In nematodes particularly, there is an immature (L1 and L2) phase and mature (L3) phase of the larvae at which time it can become infective.

Livestock become infected by direct consumption of the infective phase of the larva, skin penetration or maternal transmission. It is therefore important to know the life cycle to get control of the individual parasite problem. From the fecal data sheet information (Table 1), you will have a good handle on the major parasites that need to be considered in your specific geographic area (or farm).

Parasite loads will vary by season, higher during warm, humid, moist times and lower during the fall and winter months and by individual specie. Inhibited larval development (delayed egg laying) can occur until the external environment is prime for larval development. In the warm, moist, humid pasture areas, the first larval phase can hatch in a few hours whereas in the dry areas or during low temperatures, hatching is much slower developing or the larva can die. Once the larva hatches to L3 it has become infective and caution is warranted in grazing pastures.

During the cool part of the day, the larva will be at the plant base and as the temperatures rise during the day, so do the larva, up the stem and onto the leaves. Larva can migrate horizontally to 30cm or more and vertically 2cm to 10 cm (although 2cm

to 5cm is most common). Larval migration will be more relevant in the early morning with dew, after a rain, or after irrigating. Now is a good time to collect water droplets (dew, rain) and learn to identify larvae. This parasite identification technique gives you a 5 to 7 day advantage to make management changes to avoid deworming. It will also enhance the goats' immune system substantially.

Pasture management is critical in preventing accumulation of infective larvae. Safe areas are needed for goats to graze to avoid consumption of larvae and re-infestation. Most important times for the doe are one month pre-kidding and immediately post-kidding and at weaning for the kids. It usually takes 12 – 18 months of rest to create a safe grazing area - if climatic conditions are right. For most ranchers/farmers, not enough owned acreage is available to pursue that approach and an Integrated Parasite Control Program needs to be established. Or, explore the possibilities of land enhancement, weed abatement, fuels reduction or cutover timber land management on lands owned by neighbors or public lands.

In the process of developing this program, the producer is changing from chemical control to a biologically sound program to minimize the larval challenge created by parasites. It is a dynamic process, always in the state of change. Therefore, the ability to plan, replan, plan becomes an integral part of daily routine. As grazing areas become healthy, dung beatles and earthworms appear as do parasite antagonists (bacteria and
fungi).

How does one keep this synergistic process in motion?

A. It is extremely important to maintain a higher body condition score on goats. Nutrition and resistance to parasitism are synonymous. Dietary protein must be available, especially for young growing animals and does during late gestation and early lactation. The phosphorus level in dry matter consumed needs to be increased and mineral elements and vitamins in balance. Intake by the goats will vary based upon body weight, forage quality and quantity as well as availability.

B. To provide the above needed nutrition, plant diversity in grazing areas needs to be maximized to provide the quality and quantity needed during both drought (more protein and phosphorus) and during the wetter times of the growing season (more minerals, especially copper and zinc). Depending upon the location of your specific property, there are various approaches used to attain needed nutrition. 1) Tame pastures - planted high quality mixed grass and forb species for goats (a grazing brome, plantain, chicory and trefoil). Plant specie selection is important as different chemicals in plants (tannins) have an effect on internal parasites and leaf structure (chicory) makes it difficult for larva to crawl and cling. Pasture rest is based upon death of infective larvae and management strategy for specific plant utilization. 2) Regrowth from haying and silage making - cut higher than 5cm and graze at no less than 10cm in height. 3) Irrigated pasture - irrigate immediately upon removal of the goats, do not return until vegetation is more than 5cm high and give a longer rest period dependent upon individual internal parasite specie. 4) Brush, forbs, shrubs and rangelands – a goats first love - stay out there as much as possible. The moral of the story is - the higher the head, the lower the level of internal parasites.

C. Diversified specie grazing (cattle, horses, pigs, elk, deer, sheep, goats) is important as various internal parasites are not cross specie contaminating. By diversifying, there is plant selection variation among animals so, a vegetative analysis needs to be completed in a grazing area and animal specie used accordingly. The additive grazing effect from mixed specie grazing and increased grazing capacity will depend upon dietary overlap. To maintain an additive effect of both plant and animal species, grazing capacity is based upon the effect of terrain, season, grazing program, stocking rate and weather which affects production and composition. Do not have an animal species overlap of more than 18 to 30 percent or a non-additive dietary affect is obtained. Becareful of animal specie selected as they have the ability to shift diet preference (cattle and sheep) based upon forage availability and during a drought. Goats, deer and sheep in combination are non-additive; whereas goats and cattle, cattle and deer/elk, goats and horses, goats and pigs, and goats, pigs, horses, and cattle being an ideal additive effect of mixed specie diversified grazing.

D. Strategic use of anthelmintics to minimize parasite resistance and maximize the immunity of the goat is the last resort. DO A FECAL ANALYSIS BEFORE MAKING A DECISION to deworm. The most strategic times for deworming are 3 weeks pre-kidding and immediately post-kidding and at weaning for the kids and for the does. Besure to have defecation times and an area set aside dependent upon the anthelmintic selected based upon internal parasite identification.

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