

The strategy for parasite control by season is shown in Table 1 at the end of this document. Record FAMACHA scores > 3 and deworming in the health records of the Cewe data base. Ewes that accumulate repeated deworming records should be culled.

Any ewe exhibiting bottle jaw at FAMACHA screening should be dewormed and recorded in the Cewe data base.

### **Pasture Management Strategy**

Ideally for improved barberpole worm control, ewes should be left in the same grazing paddock a maximum of 4 to 7 days and paddocks rested between sheep for a minimum of 45 to 60 days, but we will not often be able to follow this strict grazing method.

### **Training**

tatiana Stanton is available to schedule Integrated Parasite Management trainings for staff and interns at the Cornell Sheep Farm. Two 1 ½ hr-long sessions are required to cover the materials. She is also available to help out with the initial FAMACHA screening of the entire ewe flock and can also conduct a 1 ½ hour session on evaluating fecal egg counts under microscopes over the summer if requested.

## **CONCLUSIONS**

The chief handicap of FAMACHA screening is that more time is needed to individually assess animals than to deworm the entire flock. This will be minimized by screening a 50-ewe sample. Ideally, in order to limit deworming to retain sufficient non-resistant refugia in the pastures, FAMACHA exams should be done frequently enough that no more than 5 to 10% of the flock has FAMACHA scores of 4 or more (and needs deworming) when examined.

Pasture management should be adjusted to help reduce ewe infection and lengthen the interval between required FAMACHA screenings. Paddocks should be grazed no more than 10 days (ideally 4 to 7 days) and rested a minimum of 45 to 60 days between sheep uses. This amount of rest will not often be possible and may not be needed for mature ewes, most of whom have developed immunity. All pastures should be included in the rotation so that the populations of undesirable plants, like burdocks, in the pastures do not increase. Making hay, brush hogging, or grazing by beef cattle during these extended rest periods may be needed to maintain pasture quality and will also contribute favorably to parasite control.

### **Notes:**

- Levamisole was used as a dewormer for about 20 years prior to spring 2008, when it was found to be totally ineffective. That was when the switch was made to Ivermectin, which was shown to be effective.
- In contrast with Southern research, pasture rest periods of 4 weeks or so seem to have worked at the Cornell T&R Sheep Farm in the past.
- It is very likely that adult Cornell ewes are highly resistant to worms. Furthermore, our most susceptible animals (lactating ewes and growing lambs) often are not on pasture. Therefore, we may not need to do the FAMACHA check as often as suggested in this protocol. In addition, based upon past experience, we may be able to return to pastures sooner than indicated in this protocol. Evaluation of sheep by FAMACHA scoring and/or counting fecal eggs is needed to check this.
- FAMACHA scores and deworming should be recorded in the health record of the Cewe data base. *Ewes that accumulate repeated deworming records should be culled.*

Table 1. Calendar for integrated internal parasite management of the Cornell sheep flock.

STAR period	Time period	Sheep group	Action <sup>1</sup>
2	Mid-April after end of breeding season and prior to pasture turnout	Nonlactating ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
		Lactating ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Rams from breeding groups	FAMACHA score. Deworm rams scoring 3, 4, or 5.
2	Late May end of STAR period	Lambing ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Pastured lambs	FAMACHA score. Deworm lambs scoring 3, 4, or 5.
		Pastured replacement ewe lambs	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Breeding rams	FAMACHA score. Deworm rams scoring 3, 4, or 5.
		Non-lambing ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
3	Late June after end of breeding season	Nonlactating ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
		Rams from breeding groups	FAMACHA score. Deworm rams scoring 3, 4, or 5.
		Pastured lactating ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Pastured lambs	FAMACHA score. Deworm lambs scoring 3, 4, or 5.
3	Early August end of STAR period	Lambing ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Pastured lambs	FAMACHA score. Deworm lambs scoring 3, 4, or 5.
		Pastured replacement ewe lambs	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Breeding rams	FAMACHA score. Deworm rams scoring 3, 4, or 5.
		Non-lambing ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
4	Early September after end of breeding season	Nonlactating ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
		Rams from breeding groups	FAMACHA score. Deworm rams scoring 3, 4, or 5.
		Pastured lactating ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Pastured lambs	FAMACHA score. Deworm lambs scoring 3, 4, or 5.
4	Mid October end of STAR period	Lambing ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Pastured lambs	FAMACHA score. Deworm lambs scoring 3, 4, or 5.
		Pastured replacement ewe lambs	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Breeding rams	FAMACHA score. Deworm rams scoring 3, 4, or 5.
		Non-lambing ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
5	Mid November after end of breeding season	Nonlactating ewes	FAMACHA score 50 ewes. Don't check rest of flock if > 80% of ewes score 1 or 2 and there are no scores of 4 or 5. Deworm ewes scoring 4 or 5.
		Pastured lactating ewes	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Pastured lambs	FAMACHA score. Deworm lambs scoring 3, 4, or 5.
		Pastured replacement ewe lambs	FAMACHA score. Deworm ewes scoring 3, 4, or 5.
		Rams from breeding groups	FAMACHA score. Deworm rams scoring 3, 4, or 5.

<sup>1</sup>Record FAMACHA scores > 3 and deworming in the health records of the Cewe data base. Ewes that accumulate repeated deworming records should be culled.