



## #1 – Creep Feeding

*By tatiana Stanton*

The topic of this fact sheet is creep feeding as a management tool for meat goat farms in the NE US. Creep feeding is the practice of supplementing suckling kids with a concentrate feed in addition to their dam's milk by placing their feed somewhere that their dams can not get to. Creep feeding is usually started when kids are about two to three weeks old by using a creep feeder or creep pen. Most creep feeding is done by setting up a creep pen that kids can get into but does can not.

One of the first management decisions a meat goat farmer must make after kids are born is whether or not to creep feed. Creep pens can be set up even before kids consume much concentrate feed to encourage kids to discover them on their own and get in the habit of playing and sleeping in them. If kid loss from smothering is a problem in the herd due to kids piling on top of each other to escape drafty conditions, creep areas can help solve this problem if equipped with shelving or heat lamps to discourage piling (Figure 1). There are always risks of barn fires with heat lamps so it is generally best to get rid of the drafts instead. If using heat lamps, make sure they are kid proof and secured safely, and that smoke detectors are in good working order.



**Figure 1. Creep feeder with heat lamp**

Creep areas are fairly easy and inexpensive to set up (Figures 2, 3, and 4). Walls are often formed using livestock panels or wooden pallets and openings can be provided by many inexpensive means such as 1) a 7" wide x 12" high opening in a wall, door or gate, 2) use of a tube gate with a 6 ½ to 7 inch gap between the bottom rails (the gate can be flipped as kids get

larger to provide a larger opening) or 3) one or more openings can be cut in a livestock panel with 8" x 6" holes by using a bolt cutter or hack saw to cut out one 8" horizontal wire so that an 8" x 12" opening is left. If necessary, two wooden 2x4's can be attached on either side of the panel vertical to the ground with two wing nuts so that they overlap one vertical edge of the opening and can be adjusted forward and back to make the opening narrower than 8" as needed. Adjustable creep feeder gates are available commercially and mobile creep pens can also be designed for use in pastures.



**Figure 2.** Using an opening



**Figure 3.** Using a gate



**Figure 4.** Using a panel

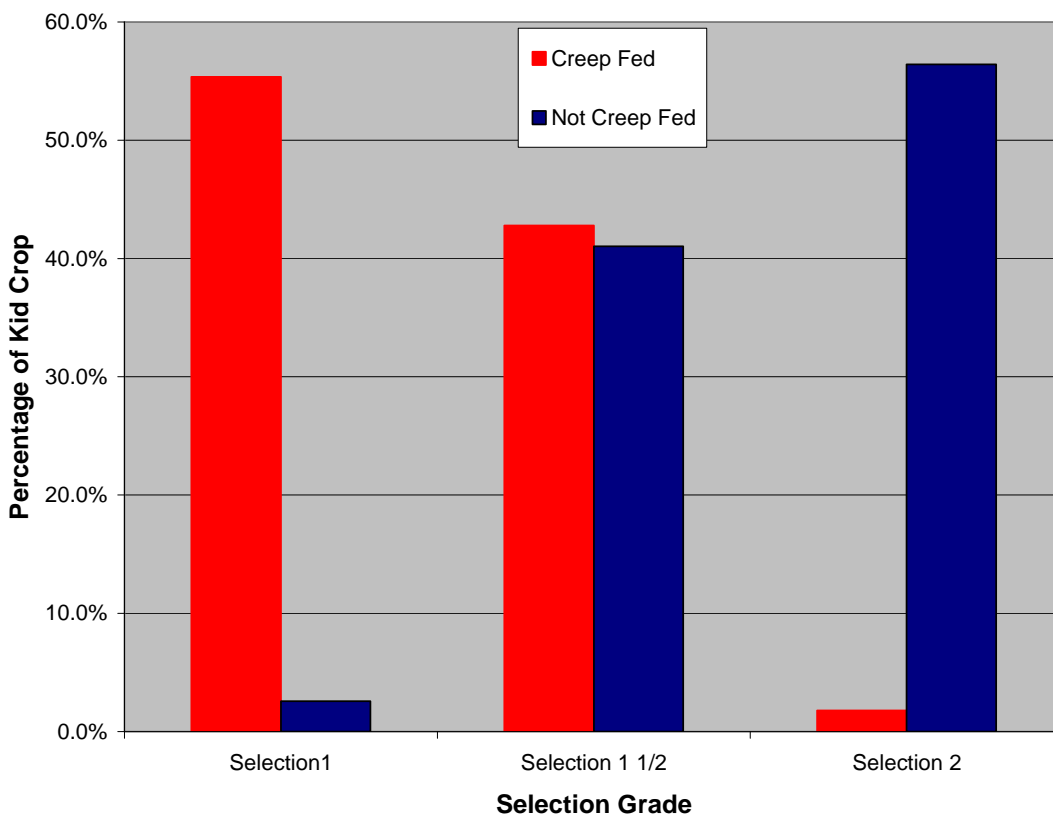
Creep pens can be used to corral kids for castrating, ear tagging, tattooing, disbudding, and general health exams. In addition, they may help prevent coccidiosis in kids by making it easy to target them with a coccidiostat in their feed, minerals, or water and by providing a resting area uncontaminated by adult goat feces.

The main disadvantage that farmers must weigh when deciding whether to set up a creep feeding system is the cost of the creep feed itself as compared to potential improvements in kid growth and quality. The Cornell Department of Animal Science in cooperation with the Empire State Meat Goat Producer's Association was awarded a grant from the Northeast Sustainable Agriculture Research and Education Program (NE SARE) in 2005 to observe the effectiveness of various herd practices including creep feeding on meat goat farms in the NE US. Creep feeding

practices at two high percentage Boer goat herds approximately 1 mile apart were compared in the spring of 2005. Both farms kid in April, raise does and kids on pasture starting in May, and market weaned slaughter kids.

During the study, one farm creep-fed their kids on a mixture of corn and high energy lamb pellets starting at 3 to 5 weeks of age while kids at the other farm had no access to concentrate feed. For the purposes of the study, the “no creep feed” farm decided to limit manger space at feeding time so that adult does crowded kids out from the mangers and prohibited their access to concentrate feed. Creep-fed kids grew an average of 0.48 lb daily during the 62 days studied compared to 0.32 lb daily for the kids that were not creep-fed during the 59 days studied. Three-year-old does nursing twins were most common on both farms. When weight gains for each farm were standardized to 60 days, creep-fed twin kids from three year old does gained 11.6 lb more during 60 days as compared to their non-supplemented counterparts. Kids were weaned at the end of the 59- to 62-day study period at approximately 80 to 100 days old at an average weight of 53.1 lb and 41.4 lb for the creep and non-creep-fed kids, respectively. Amount of concentrate consumed at each farm was similar, with does whose kids were not creep-fed consuming 2.25 lb of grain daily and does that nursed creep-fed kids consuming 1.5 lb of concentrate with their kids consuming 0.25 lb each daily. However, feed costs for the creep-fed farm over the 60 day period were \$7.00 more per doe unit due to the higher cost of creep feed compared to the concentrate fed to does. The average cost for the increased gain of creep-fed twins was roughly \$0.32 per lb of gain ( $\$7.00 \div 22 \text{ lb live weight}$ ). If these kids had been sold for slaughter as suckling kids in 2005 at \$1.60 to \$2.25 per lb live weight, the returns from the additional weight gain would have easily warranted the additional expense of creep feeding.

In addition, top quality (Selection 1) suckling kids usually command a better price than kids that are less conditioned (Selection 2 or 3). One rule of thumb is that suckling kids gaining  $\frac{1}{2}$  lb or more per day will easily grade Selection 1, kids gaining  $< \frac{1}{2}$  lb but  $> \frac{1}{3}$  lb will grade either Selection 1 or 2 depending on how healthy and well conditioned they appear, while kids gaining  $\frac{1}{3}$  lb or less will generally grade Selection 2 or 3. Figure 5 shows that 98 % of the creep-fed kids would have either easily graded Selection 1 (55%) or been borderline for Selection 1 (43%) whereas only 44% of the non-creep-fed kids would have possibly met the criteria for Selection 1 if marketed as suckling kids shortly before weaning. The herd that creep-fed would have received substantially better returns than the herd that did not if the kids had been marketed as 10 to 12 week old sucklings.



**Figure 5.** Effect of creep feeding on selection grade of kids

In general, the kids on both farms were healthy throughout the study. However, one healthy looking kid on the creep-fed farm died suddenly 6 days into the study. Enterotoxemia (overeating disease), a common cause of sudden death in healthy kids, may explain this death. Pregnant does on both farms were vaccinated against enterotoxemia 3 to 6 weeks prior to kidding, but even with vaccination, creep-fed kids are more at risk for enterotoxemia than kids that are not creep-fed. Recommendations for creep-fed kids include making sure their dams are vaccinated with a booster against enterotoxemia at least 10 days prior to kidding and using a creep feed high in fermentable fiber rather than solely providing energy from low fiber grains.

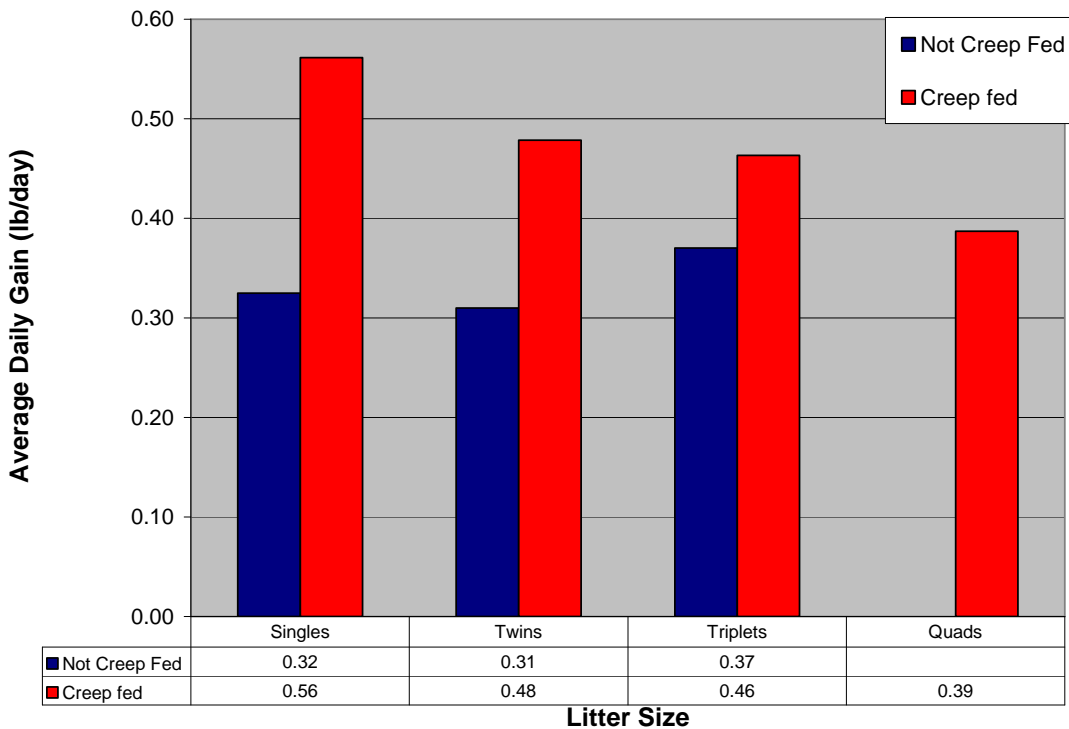
The kids on both farms were marketed as weaned kids rather than as sucklings. In this situation, slow growth during the suckling period can be made up for after weaning so there may be no beneficial effect of creep feeding. However, in this study, the kids that had no creep feed did not rapidly gain weight after weaning. Instead, the stress of weaning seemed to be far worse than for the kids that had been creep-fed. The creep-fed kids were very close to their target market weight at weaning and were put into a drylot environment on free choice hay and grained twice daily. They were marketed when they reached 60 to 75 lb as two groups at 2 and 6 weeks after weaning. In contrast, the non-creep-fed kids were far enough from their projected market weights that they were put out to pasture and supplemented with grain once daily. Weight gain after weaning was slower than in the creep-fed group because they lost weight when removed from their dams, took longer to adjust to grain rations, and suffered high worm loads on the initial “weaning” pasture. The pasture had previously been grazed twice during the early part of the growing season and was short due to drought conditions. Ideally, kids should be put on a highly nutritious pasture with little or no worm load at weaning. These kids were marketed when they reached 60 to 75 lb as two groups at 10 and 16 weeks after weaning or approximately 8 to 10 weeks later than the creep-fed group.

There are two issues to point out with this study. The effects of creep feeding were compared across two farms rather than within one farm. Thus, differences between the two groups of kids were not limited to whether they had been creep-fed. Undoubtedly, pasture quality, herd genetics, herd health and other herd factors also contributed to the differences observed. However, both farmers concluded that creep feeding explained much of the differences in growth.

Secondly, the kids that were not creep-fed had no access to concentrate feed while their dams had access to quite a lot of concentrate given that they were grazing under fairly lush pasture conditions. In previous years, the farm had not creep-fed but had always allowed sufficient manger space for kids to eat concentrate alongside their dams. Thus, as kids got older they gradually consumed a larger proportion of the concentrate offered to their doe unit. The farmer observed that weaning shock was more severe in 2005 because kids were not accustomed to concentrate prior to weaning. Farm records also bore out that the suckling kids grew slower over the 59-day period than they had at similar ages in previous years.

We normally expect daily gain per kid to decrease with litter size. This was observed in the creep-fed herd, although the supplemental nutrients provided by creep feeding allowed all kids to grow at a fairly respectable rate (Figure 6). In contrast, singles and twins in the non-creep feed herd grew at almost identical slower rates while the one set of triplets outperformed them. These results indicate that there may have been an underlying problem in this herd causing does nursing singles to have poorer milk production than does with larger litters. The farmer felt that the extra proportion of concentrate eaten by the does in 2005 as compared to gradually being eaten by their kids as in previous years did not translate into extra milk production but instead may have actually contributed to mild acidosis and lower milk production. This study did not explore what the differences in feed costs would have been if does on both farms had been fed

equal amounts of concentrate. A recommendation from this study is that farms that do not creep feed but do offer concentrate to their does should allow enough manger space for kids to eat alongside their dams and gradually become accustomed to concentrate feed prior to weaning.



**Figure 6.** Effect of creep feeding on weight gains of kids

In conclusion, kids on the creep-fed farm grew close to a ½ lb daily as compared to about ⅓ lb daily for kids on the non-creep-fed farm during the 60 days studied. Weaning was more stressful for the non-creep-fed group and they met their targeted slaughter weight 8 to 10 weeks later than did the creep-fed group. In addition, grazing the kids on pasture reduced pasture availability for does or for expansion of the breeding herd. However, the decision to creep feed must be made on a farm to farm basis. Improved early growth and quality from creep feeding may be more important for farms marketing suckling kids compared to farms marketing weaned market kids at the end of the grazing season. Creep feeding may also be more beneficial for yearling does nursing ≥ twins and older does nursing ≥ triplets compared to yearlings nursing

singles or older does nursing  $\leq$  twins. The current cost of creep feed must be weighed against the expected improvement in weight gain and current live weight prices for goat kids. Some example creep feeds are provided below. Herd owners should keep reliable farm records to compare weight gains and prices received to feed consumption and expenses in order to accurately evaluate the effectiveness of creep feeding under their own herd conditions.

### Appendix I. Sample creep rations – ranging from about 16 to 20% crude protein

**Ration 1** – Assumes hay and a mineral/vitamin mix fed free choice w/ coccidiostat in the minerals if needed

Ingredients	Pounds As Fed	% As Fed
Shelled corn	79	79
Soybean meal	20	20
Feed quality limestone	1	1

89% dry matter, 16.2% crude protein, 10.8% NDF, 7.4% Fermentable NDF, 3.6% EE, .49% calcium, .34% phosphorous

**Ration 2** – Assumes hay is fed free choice

Ingredients	Pounds As Fed	% As Fed
Corn grain (cracked)	882	44.10
Soybean meal	516	25.80
Soy hulls	480	24.00
Molasses (add last) <sup>a</sup>	80	4.00
Vitamin-mineral premix	20	1.00
Calcium carbonate	16	0.80
CSF vitamin E premix <sup>b</sup>	5	0.25
Deccox, 6% concentrate <sup>c</sup>	1	0.05
Totals	2000	100.00

90.4% dry matter, 20% crude protein, 23.6% NDF, 19% Fermentable NDF, 2.8% EE, .59% calcium, .35% phosphorous

<sup>a</sup>Molasses is included to reduce the dust. Alternatively, vegetable oil, which often can be obtained at no cost as used product from restaurants that make french-fries, can be used in place of molasses.

<sup>b</sup>Contains 19,075 ppm (DM basis) and 17,011 ppm (air dry basis) of vitamin E.

<sup>c</sup>In addition to the Deccox in the premix to ensure that sucklings consume sufficient amounts.

**Ration 3** – Total Complete Ration

Ingredients	Pounds As Fed
Barley	2476
Soy Hulls	797
Soybean Meal	557
Limestone	54.4
Mineral Mix	18.1
Ammonium Chloride	9.1
Vitamin Pack	4.5
Deccox	4
Vegetable Oil	80
Chopped Alfalfa/Grass Hay	200

90% dry matter, 17.4% crude protein, 28.4% NDF, 22% Fermentable NDF, 3.9% EE, .84% calcium, .37% phosphorous



**Ration 4** – Uses bovatec as a coccidiostat, probably should include a mineral/vitamin mix fortified for Selenium and other trace minerals and vitamins

Ingredients	Pounds As Fed
Iodized Salt	80
Molasses	50
Soy Hulls	510
Soy Meal 48%	295
Wheat Middlings	475
Distillers Grain	100
Ground corn	300
Corn Gluten Feed	100
Limestone	40
Ammonium chloride	40
Bovatec	9
Total quantity	1999

90% dry matter, .74 mcal energy, 19.5% crude protein, .98% calcium, .5% phosphorous

**Ration 5** –high in fermentable fiber to cut down on risk of enterotoxemia , uses deccox as a coccidiostat

Ingredients	Pounds As Fed	% As Fed
Soy Hulls	510	25.5
Wheat Middlings	475	23.8
Corn Meal	300	15
Soy 48%	295	14.8
Distillers Grains	140	7
Gluten Feed	100	5
Molasses	46	2.3
Salt	40	2
Limestone	40	2
Ammonium Chloride	40	2
Deccox	13	.625
Selenium .06%	0	.025
R-H Mini Fortified Vitamins	0	.025
Vitamin E-20	0	.025
Flavorizer	0	.025
Total quantity	2000	

90% dry matter, 22% crude protein, 36% NDF, 31% Fermentable NDF, 3.2% EE, 1.07% calcium, .57% phosphorous

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*Our funding agencies need to evaluate whether this fact sheet was useful to you. If you are a meat goat producer, we ask that you take the time to complete the following questions and return to tatiana Stanton, Rm 114 Morrison Hall, Cornell Univ., Ithaca, NY 14853 or TLS7@cornell.edu.*

### Creep Feeding Questionnaire

1. Did you creep feed your kids during your last kidding? Why or why not?
  
2. Do you plan to creep feed your kids during your next kidding? Why or why not?
  
3. Did reading this article have any effect on your decision? Please explain.
  
4. How informative would you rate this article on a score of 1 to 5 (with 1 =not informative at all and 5 = very informative). \_\_\_\_