

(Continued from Page A22)

In order to properly balance the pH level, a farmer must know the chemical content of his feed, including the silage, as well as its physical properties. He also must pay attention to the order in which the various components are fed to the cow.

If a farmer is feeding the grains separately from the forages, the forage should be fed first because, in general, Hlubik stated, "the pH is raised when forage is fed, while the pH is lowered when grain is fed." In other words, forages lower the level of acid, while grains raise the acidity level.

Hlubik felt the best way for far-

mers to feed their herd is to feed hay first, to promote salivation by keeping the chop length greater than 1/2 inch, add buffers where necessary, watch the forage to grain ratio making sure that on a dry matter basis there is 40 percent or more forage, and to keep the water pH at about 6.5 to 7.0.

His advice for farmers was to feed for nutrients, not specific feed stuffs. Some feeds, such as cotton seed, may not enter least-cost ration formulations.

The abomasum in newborn calves comprises 60 percent of the stomach capacity. They have an esophageal flap that directs milk directly to the abomasum until the

animal is weaned.

Rumen activity begins as soon as the calf starts eating fibrous materials, but it won't be functional until the calf is three to four weeks old. Until that time, Hlubik advises that the crude fiber content of milk replacers should be less than 0.5 percent. Hlubik also recommended that, for the first two or three weeks of life, a milk replacer with milk protein rather than vegetable protein should be used.

Feed stuffs categorized

Dave Schwartz categorized several feed stuffs according to their protein and energy levels. He noted that the full energy content of corn is not available to the cow unless it is ground finely enough

that a large surface area is available to micro-organisms in the rumen. Schwartz emphasized that oil, such as that supplied by whole soybeans, should comprise no more than 1 to 1.2 percent of the total ration.

Glenn Shirk discussed how the amount of milk produced is directly related to the amount of feed a cow consumes. Low dry-matter intake (DMI) also can cause breeding problems.

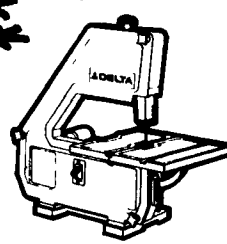
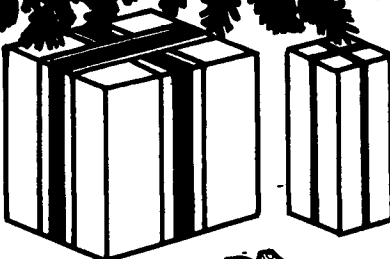
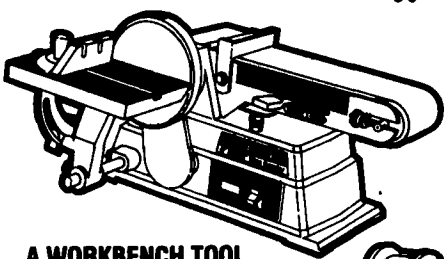
DMI is affected by many variables such as the digestibility, palatability, and availability of feed, environmental factors such as ventilation, humidity, and temperature, and the presence of toxins

in the feed.

Among the point Shirk stressed are:

- forage must be digestible so that it doesn't spend too much time in the rumen and take up space.
- forage should be the first thing fed to a cow each day so that the rumen becomes buffered.
- heifers should be matched according to size so that they all can get to the feed. Introduce a heifer to the herd shortly before she freshens.
- keep the feed in the bunk fresh so the cows will eat. This is especially important in hot weather.
- activity such as moving feed conveyors or moving cows from one area to another stimulates feed intake.
- a good forage to grain ratio for high-producing cows is 50:50. The forage requirements should be met first as this improves absorption and digestibility. Excessive amounts of grain lead to acidosis and other nutrition-related problems.

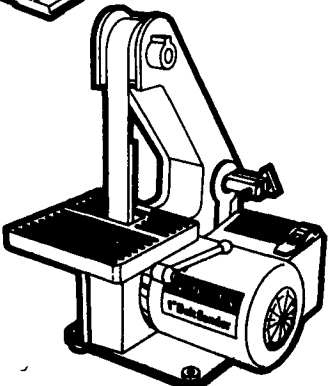
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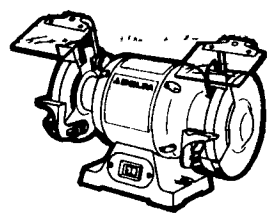
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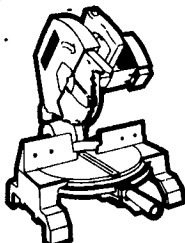
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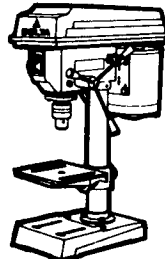
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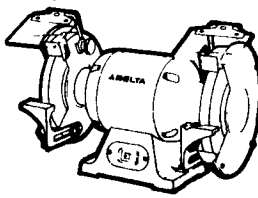
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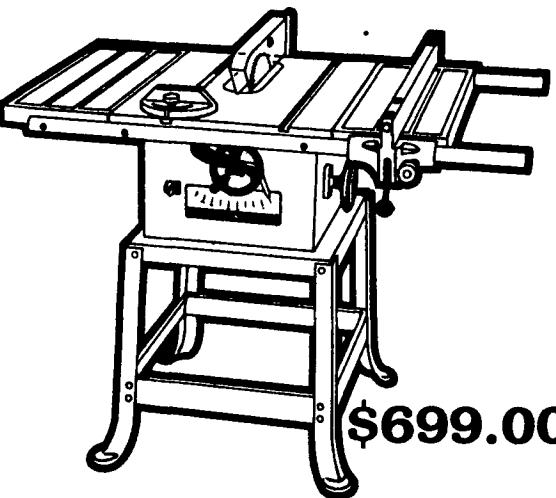
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