

<b>Distillers dried grains</b>	- A medium-protein feedstuff obtained after the removal of ethyl alcohol by distillation from the yeast fermentation of grain. Optimum levels suggested are 15-25% of ration.	<b>Poultry litter</b>	- Prohibited in Interstate Milk Shippers resolution from being used in lactating cow rations. Palatability problems encountered where high feed intake is desired. Heifer rations may contain from 10 to 15%. Use laboratory analysis to establish composition values.
<b>Feather meal</b>	- A high-protein, medium-energy product of the poultry industry. Contains 60-70% escape protein. Use in quantities of 2-5% of dry matter since high levels may decrease dry matter intake.	<b>Soybean hulls</b>	- The outer covering of the soybean. The 30-35% fiber hull contains only 12-14% effective fiber. Suggested levels are 10-20% of rations.
<b>Meat and bone meal</b>	- Meat and bone meal is high in protein and escape protein as well as minerals. May be used for high-producing cows. Other sources of protein are generally more economical and give similar results.	<b>Soybean, seed</b>	- Commonly processed and used as soybean meal. May be used as whole soybeans or rolled for better utilization. Finely grinding soybeans may cause oil and gummy problems. Crush or roll soybeans for best results.
<b>Oats</b>	- An excellent cereal grain used for feeding all classes of livestock. Oats need to be rolled or ground for dairy cattle.	<b>Wheat</b>	- An excellent cereal grain for all livestock. Suggested levels are 20-35% of total ration. Wheat must be rolled or ground. Wheat ground too fine is less palatable due to floury meal and pasty mass in the mouth.
<b>Peanut hulls</b>	- High in fiber; low in energy and protein. Must be well-textured to have a high effective fiber value. Use in limited quantities or to extend other fiber sources. Pelleted hulls are low in effective fiber.	<b>Whey, lacto</b>	- A liquid product containing 44% protein, of which 42% comes from ammonium lactate. Maximum levels suggested are 2-3 lbs daily per cow, or 15% or less of the concentrate.
<b>Peanut skins</b>	- The outer covering of the peanut kernel that may contain some broken peanuts. Contains excellent bulk and frequently improves flow problems. Suggested levels are 5-10% of ration due to their fairly high content of tannin.		

## Using Mineral Supplements

Various mineral supplements are available and frequently used in formulating rations. A list of commonly used supplements is shown in Table 8.

Considerable work has been done in recent years to better establish the mineral needs of high producers and to define the role of minerals in nutritional biochemistry. Table 9 shows the current levels of the major or macro minerals recommended for dairy cattle rations.