

Bone meal

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Bone meal (or **Bone manure**) is a mixture of finely and coarsely ground animal bones and slaughterhouse waste products.^[1] It is used as an organic fertilizer for plants and as a nutritional supplement for animals. As a slow-release fertilizer, bone meal is primarily used as a source of phosphorus and protein. Finely ground bone meal may provide a quicker release of nutrients than the coarser ground version of bone meal.

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Uses

Dietary supplements

Bone meal, along with a variety of other meals, especially meat meal, is used as a dietary/mineral supplement for livestock. It is used to feed monogastric animals with bone meal from ruminants, and vice versa, to prevent the spread of bovine spongiform encephalopathy (BSE) or "mad cow disease". Proper heat control can reduce salmonella contaminants.^[2]

Bone meal once was often used as a human dietary calcium supplement. Research in the 1980s found that many bone meal preparations were contaminated with lead and other toxic metals, and is no longer recommended as a calcium source.

Fertilizers

As a fertilizer, the N-P-K (Nitrogen-Phosphorus-Potassium) ratio of bone meal can vary greatly, depending on the source. From a low of 3-15-0 to as high as 2-22-0,^[3] though some steamed bone meals have N-P-Ks of 1-13-0. Bone meal is also an excellent source of calcium, but does not provide enough nitrogen to be beneficial to plants.^[4] Plants can only get phosphorus from bone meal if the soil pH is below 7.0 (acidic soil), according to recent Colorado State University research.^[3]

Mycorrhiza

Organic fertilizers usually require the use of a variety of fungi in the soil to make the nutrients in the fertilizer bioavailable to the plant. For plants needing phosphorus, the fungi mycorrhiza penetrate the roots and break down the compounds containing the phosphorus for easier absorption and utilization, and in turn the plants supply the mycorrhizae with amino acids and sugars.^[5]

Health risks

In the 1980s, bone meal was identified as a vector for bovine spongiform encephalopathy (BSE, or "mad cow disease") among livestock. Bone meal produced in the 1970s from the corpses of sheep bearing scrapie may have caused BSE in cattle when it was fed to them, but the pathogen very rarely crosses species; BSE is more likely to have spread through cattle consuming cattle-derived bone meal. The type of processing can determine if the infectious agent would be passed on.^[1] Proper heat treatment can reduce the chance of salmonella being transferred to any other livestock.

History

In 19th century Europe, large scale production and international trade in bone manure was seen as essential for agricultural development.^[6]

See also

- Blood meal
- Bone crusher
- Feather meal
- Meat and bone meal
- Organic hydroponic solutions

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