Feeding Bees Pollen Substitutes

Honey bees derive their protein, vitamins, minerals and some carbohydrates from pollens. Since no single pollen source provides all their nutritional needs, honey bees must have a number of pollens available to them to remain healthy and to produce the royal jelly required to feed the queen and rear brood. When colony inspections reveal little or no pollen in the combs, or the anticipated weather is going to prohibit pollen foraging for more than a couple days, it is time to feed some pollen substitute. It also would be best to feed sugar syrup at the same time.

The substance that most similarly mimics pollens in nutrition, and can be purchased at a reasonable cost, is brewer’s yeast. Yeast can be fed to the bees dry, but they use it much better when it is fed as patties with a consistency similar to peanut butter. For beekeepers operating only a few colonies, the yeast is often mixed with fifty percent sucrose syrup. The patties are encased in waxed paper or in plastic bags to try to maintain the moisture. If patties get hard, the bees won’t eat them. Beekeepers, who feed their colonies high fructose corn syrup, use that syrup to formulate patties that maintain their moisture well because of the attraction of moisture to fructose.

Other nutrients are sometimes added to pollen substitutes. When about ten percent pollen is added, we call the mixture "pollen supplement." Beekeepers tend to add casein, lactalbumin or soy flour to their mixtures. Watch out for lactose and over two percent salt (sodium chloride) with the casein and lactalbumin. Try to get “debittered” soy flour that is expeller processed (retains some lipids) and "toasted" (knocks out enzymes that interfere with honey bee digestion). Also check the soy data sheet to determine if the soy is a “high sucrose” variety or contains mostly stachyose. Stachyose is toxic to honey bees. The addition of a "feed yeast" (like Torula) to the mixture enhances the nutritional value of the substitute, but it increases the cost quite a bit, too.

Pollen substitutes will not generate brood production the way that sources of incoming pollens will. However, pollen substitute will prevent a total shut down of brood rearing if the weather turns bad for a long time. Pollen substitute will produce "fatter" winter bees

in areas (like the west) where pollen supplies are short in the late summer and fall. Fatter bees, with more stored nutrients, winter better and rear more brood the next spring than non-fed bees.

Bees do not find pollen substitutes particularly attractive. It must be placed directly in contact with the bees, as close to the brood as possible. As long as the bees are bringing in a trickle of natural pollen, pollen substitute will be consumed. If no pollen is being brought in, the substitute will be ignored and will spoil over time.

Commercially formulated pollen substitutes are on the market, or headed toward the market, that are described as so attractive to honey bees that they will be consumed any time they are offered. Those claims will have to be investigated.

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