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Zarnam honeybee syrup as reliable source of carbohydrate in beekeeping

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Climate changes and extended periods of forage dearth, habitat loss and monoculture landscape necessitate the artificial feeding of the honeybee colonies to achieve the optimum pollination and also an ideal yield including honey, pollen, royal jelly and etc. Moreover, prevention of honeybee colonies from starvation can strengthen the colony which can have significant impacts on pollination efficiency and the ability for combating with pathogens, pesticides and pollutants which can lead to reduced colony loss. Carbohydrates are the main source of energy for honey bee colony and worker bees are exclusively dependent to their provision after a certain age stage in their life. White sugar is used for many decades as a safe and trustable source of energy for honeybee colonies. Due to high price of white sugar, work force needed for making syrup, tendency to crystalize and ferment and impurity and being used as human food, high fructose corn syrup (HFCS) got popularity in beekeeping as a cheap and easy to use alternative source of energy. The effects of HFCS were controversial at the beginning due to presence of polysaccharide residues as a consequence of incomplete starch breakdown and also formation of some other derivatives with potential toxicity for honeybees. Moreover, the process was acid-based which when coupled with high temperature, would lead to formation of hydroxy-methyl furfural (HMF), a component highly toxic to honeybees. However, continuous improvement in refining technologies including more efficient enzymatic hydrolysis without using acid and high temperature leaded to products without any polysaccharide residues and also HMF making it more reliable source of energy for honeybee. Due to similar sugar profile of HFCS derived syrups with honey, these products can better meet honeybee nutritional requirement and not imposing further work for converting and processing the sugars in their diet. Zarnam Honeybee Syrup, a new product from corn hydrolyzed carbohydrates is formulated according to honeybee requirement, resistance to microbial contamination and fermentation, resistant to crystallization, high dry matter content, optimum pH and easy to use which make it a reliable energy source to sustain colony performance while reducing the feeding cost.