

Honey Bee Bacterial Diseases and Major Differential Diagnoses

American Foulbrood (AFB)	European Foulbrood (EFB)	Idiopathic Brood Disease (IBD)	Parasitic Mite Syndrome (PMS)
Clinical Signs			
Shotgun/patchy brood pattern	Shotgun/patchy brood pattern	Shotgun/patchy brood pattern	Shotgun/patchy brood pattern
Very foul, dirty gym sock-like odor	Odorless or sour milk-like odor	Foul odor—different from AFB and EFB	Melted larvae
Pupal tongues	Poor colony buildup in spring—larvae difficult to detect on inspection	Yellow larvae that retain 'C' position	Bees dying on emergence from cells
Dying pre-pupae/pupae melting against cell wall	Discolored larvae (yellow or brown)	Larval death in prepupal stage—sticking straight up parallel to cell	Guanine crystals on cell walls
Capped cells sunken, discolored, perforated	Twisted or corkscrew-shaped larvae	Larvae appear melted and gummy	Adult bees exhibit deformed wings
Hard to remove scales on cell bottom	No scale formed—dead larval bodies easily removed	Larvae melted into dark gray color	Chewed pupae
Brown liquid at bottom of cell or oozing out of cap	Visible trachea in larvae	Perforated cappings	Uncapped pupae with eyes visible
Dying larvae	Yellow royal jelly around larvae	Loose scale on cell bottom	Visible varroa mites on adult bees (indicates heavy infestation)
Diagnosis			
Physical examination findings	Physical examination findings	Physical examination findings	Physical examination findings
Positive rope test	Negative rope test	Negative rope test	
Positive Holst milk test	Negative Holst milk test		
Positive AFB field ELISA test	Positive EFB field ELISA test		