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Disease, Poisoning & Pests

<i>The Candidate should be...</i>	<i>Responses may include:</i>		
5.1 able to describe the appearance of healthy brood	 Single eggs are laid in the base of the cell  Pearly white, C-shaped, segmented larvae lying in a bed of milky brood food  Larvae of the same size/age should be seen in adjacent cells  Capping colour varies but should remain a digestive biscuit colour, dry in appearance, slightly convex and without perforations  Even brood pattern – wall to wall (except for wires) with few empty cells		
5.2 able to describe the signs of the <i>bacterial</i> diseases American Foul Brood (AFB) and European Foul Brood (EFB) and the <i>fungus</i> diseases Chalk Brood (CB) and describe their effects upon the colony Brood Diseases	<i>Disease</i> AFB Notifiable Disease	<i>Signs</i>  Affects only sealed brood  Sunken cappings  Uneven pepper pot pattern  Scales at the bottom of cells  Decomposing 'ropey' larvae  Greasy perforated cappings	<i>Effects</i>  Steady progress of disease  Majority of brood affected and therefore cannot replace its adult bee population and die out Treatment:  Incineration of combs and bees  Scorching of hive parts
	<i>Disease</i> EFB Notifiable Disease	<i>Signs</i>  Affects mainly unsealed brood  Discoloured yellow/brown larvae  Larvae lying in abnormal positions  Larvae look melted in appearance  Sour smell	 Debilitates but does not necessarily kill colony for months or even years Treatment:  Shook swarms  Antibiotics  Destruction of weak colonies
	<i>Disease</i> CB	<i>Signs</i>  Affects only sealed brood  Perforated cappings  Hard white-grey chalk like remains (mummies)  Easily removed and rattle	 Healthy colonies can tolerate this fungal disease  Replace old brood combs on a regular basis

<p>5.3 able to describe methods for detecting and monitoring the presence of varroa (a mite) and describe its effect on the colony including awareness of the effect of associated viruses</p>	<p style="text-align: center;"><i>Detection</i></p> <ul style="list-style-type: none">  Sudden decrease in adult bee population with few dead bees present  Dees with deformed wings and abdomens  Numerous mites on bees, in pupae and on hive floor  Use mesh floor and Defra calculators  Other abnormalities – bald brood, poor laying pattern, patches of dead and/or neglected brood 	<p style="text-align: center;"><i>Effect on colony</i></p> <ul style="list-style-type: none">  Little at low infestations  Slow replacement of bees  Foraging, brood rearing and defence processes break down  Ultimately, complete collapse
<p>5.4 aware of acarine (a mite) and nosema (a protozoan) and their effects upon the colony</p> <p>Adult Diseases</p>	<p style="text-align: center;"><i>Acariosis</i></p> <ul style="list-style-type: none">  Infestation of trachea  Clusters of bees appear confused and disorientated in front of the hive  Bees seen climbing the front of the hive and blades of grass but appear to be unable to fly  K wing – hooks holding wing pairs together become detached  Life span of overwintering bees is shortened  Spring dwindling leading to colony demise  No approve treatments 	<p style="text-align: center;"><i>Nosemosis</i></p> <ul style="list-style-type: none">  Infection of the gut  Acerbated by poor weather confinement (spotting)  Faecal staining on the hive  Shortens lifespan  Queens are less prolific  No approve treatment – avoid cross contamination and keep healthy stocks
<p>5.5 able to describe ways of controlling varroosis using one registered product and one recognised biotechnical method plus basic knowledge of the problems arising from pyrethroid resistant mites</p>	<p style="text-align: center;"><i>Registered Products</i></p> <ul style="list-style-type: none">  Bayvarol (pyrethroid strips)  Apistan (pyrethroid strips)  Apiguard gel <p>Implications of Resistance:</p>	<p style="text-align: center;"><i>Biotechnical Methods</i></p> <ul style="list-style-type: none">  Drone brood removal  Comb trappings  Artificial swarm  Open mesh floors  Icing sugar

	<ul style="list-style-type: none">  Pyrethroids fail to work, possibly by the development of a thicker cuticle, which will be an inherited trait  Avoid resistance by using the specified dose at the specified time  Treat as appropriate  Alternate treatments  Practise integrated pest management (IPM) 	<ul style="list-style-type: none">  Oxalic Acid  Lactic Acid  Formic Acid  Essential oils/thymol
5.6 aware of the current legislation regarding notifiable diseases of honeybees	<ul style="list-style-type: none">  Get a second opinion from an experienced beekeeper <p>A beekeeper that suspects the presence of AFB or EFB in a colony for which s/he is responsible for is:</p> <ul style="list-style-type: none">  Legally required to contact NBU to have the colony officially examined or submit a sample  Place the apiary under self imposed standstill  Follow instructions given by the inspector <p>Other notifiable diseases are:</p> <ul style="list-style-type: none"> • Small Hive Beetle • Tropilaelaps • <i>Neither are in the UK yet</i> • Asian Hornet sightings must also be notified (with a photograph and location) 	
5.7 aware of the national and local facilities which exist to verify diseases and advise on treatment	<ul style="list-style-type: none">  National Bee Unit (part of Defra) or BeeBase  Regional Inspectors  Seasonal Inspectors 	
5.8 aware of where to obtain assistance if any poisoning by toxic chemicals is suspected	<ul style="list-style-type: none">  Recognised by 100s of dead bees outside the hive entrance  Collect 3 samples of 200-300 bees and store in the freezer  Contact the spray liaison officer  Send one sample to NBU  Keep the remaining two for legal reasons 	

5.9 able to describe how comb can be stored to prevent wax moth damage	 Ensure that wax is not exposed, so that it does not attract moths  Prepare frames before storage  Deep freeze for 24 hours  Insert in a vacuum bag  Protect from mice
4.10 able to describe how mice and other pests can be excluded from the hives in winter	 Place mouse guards over the hive entrance  Wire netting to protect from woodpeckers