

INSECT LIFE CYCLE IPM ACTION SHEET

Common Name	Scientific Name	Base Temp	BioRx	Generations	Degree Day or Development Events	Phenology/Calendar	M - J - J - A - S	Early Actions	Plants affected	Trap Crop	Mechanical, Physical, & Material	Biological	Cultural	Chemical	Threshold	Technique	Companion plants for IPM
Aphids	Various	n/a	n/a	Many	n/a	Most aphids thrive on new plant growth, usually under leaves from Mid-May through the end of August before plants senesce.	Mainstay vigilance against aphids throughout the growing season.	Sound for aphids. Crush on sight. Use insecticide spray liberally when aphids are present.	Over 300 varieties (green peach aphid)	There may be some use to early plantings of cold crops such as leafy greens and overwintering adults in the growing area that are sprayed with insecticidal soap.	1. For small gardens, aphids can be crushed. 1. It is important to conserve native parasitic wasps in the area that will build up over the growing season and suppress aphid populations. 2. One group leaving leaves or parasitic wasps instead of leafyette aphids.	SO NOToverwinter! Nitrogen helps plants grow, but aphids graze to new plant growth.		1. For young plants, if 5% of plants have more than 2 aphids, treat with insecticidal soap. 2. Insecticidal spray with neem oil may provide more effective than plant insecticidal soaps.	5. If using insecticidal soap, it is recommended to leave the soap on for near 80 minutes. This will allow the time to degrade the aphid's water cuticle. 2. Insecticidal spray with neem oil may provide more effective than plant insecticidal soaps.	Plants with various sizes of flowers, such as all-gibbous and viburnum will support populations of aphid predators and parasitic wasps that will feed on and parasitize aphids of your crop plants.	
Apple maggot	Rhagoletis pomonella	50	1 Jan	1	1st adult emergence 900 DD50; 1st egg lay 1100 DD; Peak fly emergence 1600 DD; Peak egg lay 1700 DD; End of fly emergence 2800 DD	All stages of the apple maggot will be delayed under dry conditions.	Adult Egg Larva Pupae	1. Set red sphere traps by July 2. Spray baits in clay after fruitfall.	Hawthorn, plum, pear, chokecherry, cherry	In late June/early July, place red sphere traps around trees with green leaves and seal with scented lure and sealed with screened for greater aphid reduction.	1. Bag apples after harvest. 2. Store branches after harvest. 3. Trap to reduce adults. 4. Remove damaged or misshapen apples.	Apply beneficial nematodes to the soil in fall to reduce larvae. Try Steinernema carpocapsae and/or Heterorhabditis bacteriophora.	Remove fallen infested apples from the ground during the growing season.	Apply biological pesticides approved for food crop use only if adult pest pressure is above threshold.	Four adult flies per trap or 15 flies per planting	Pineapple traps every 10-15 feet depending on the level of control desired or numbers of adults observed.	
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Bean Leaf Beetle	Cercosoma trifurcata	45	Soybean emergence	2	1st Gen adults emerge 1312 DD after soybean first emerges	Adults emerge in May and feed through June.		Monitor for damage early in season, especially where plants have two sets of true leaves.	Cucurbits (cucumber, cantaloupe, squash, pump, purple, watermelon).	Plant beans around perimeter and spray with bio pesticide such as vermicompost.	Place bucket of soap water under plants to kill adult adults will draw when they fall.	Tarboled flow, Resistant barriers, parasitic mites, and nematodes.	Plant late in season to thwart BLB adults laying eggs in early season. Spray beans once by planted in mid-July.		1. 2-3 adult beetles per every 10 plants		
Cabbage Butterfly or Imported Cabbageworm	Pieris rapae brassicae varietal	50	1 Jan	3-5 overlapping	Adults emerge at 150-240 DD ₅₀	400-800*		1. Place yellow sticky traps in growing areas in mid-May. 2. When adults are trapped, spray baits daily to prevent egg lay.	cabbage, cauliflower, broccoli, kale, rutabaga, radishes, turnips, carrots, fennel, dill, and other crucifers	1. Plant perimeter of row crop cabbages around growing area. 2. Spray trap crop with Pyganet to reduce adults.	1. Pesticide program for eggs: 2. Encourage "Adventitious" moths from the store. 3. Avoid crop until insecticides are used. 4. Parasitoid pupation for chrysalis.	1. Monitor soil around healthy Brassica radishes throughout for larvae. 2. Radish thrips/pumpkins bio pesticide wherever possible to conserve soil predators.		1. Transplant to capture 30% of plants infected with 1 or more of any larval stages.			
Cabbage flea beetle	Phyllotreta cruciferae	50	1 Jan	2 or 3 per year	Adults emerge approximately 150-203 DD ₅₀	Early June		1. Yellow sticky cards by June 1. 2. Neem repellent or diatomaceous earth by June 1. 3. Neem repellent in place by June 1.	Flea beetle, Chinese giant mustard, glass half nutmeg and lettuce, trout, and Fagus sp. Spraying to reduce adults and 2nd generation larvae.	1. Fleck adults off plants. 2. Row covers by June 1.	1. Plants mulched with 3-5" of straw which appear to curbs the damage. 2. Plant late in season when adults have mostly dispersed.		1. 2-5 adult beetles on avg. per plant. 2. 5% plants with "bullet hole feeding damage."				
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Cabbage maggot ^{1, 11}	Deltia ruficornis	43 F	1 Jan	2 or 3, depending but 1st generation is the most destructive.	1st adult emergence - 250/300 DD 2nd adult emergence - 1475/1475 DD 3rd adult emergence - 2500/2500 DD	When there are no bloom or seedlings between May 30 and May 31	M. Adults emerge, Jr. Egg laying, larval feeding, Jr. Larval feeding, egg laying, pupation, A. 1. TB	M. Yellow sticky cards, material at base of plants to prevent egg laying. Jr. Scout for egg masses. Jr. Scout for larvae & egg masses. A. Yellow sticky cards. Scout for larvae and egg masses. 1. TB	Cuciferous crops, including mustard, cabbage, rutabaga, radishes, cauliflower and broccoli. Pollinators are more susceptible than Argentine Cane ¹²								
Hairy Chinch bugs	Eumecurus sticticus	n/a	n/a	Several in southern states; 2 in northern states	n/a	Mid June to July 1		Check for chinch bugs in mid June to late June using the "coffee can method"	Grasses, corn, sorghum	pending	pending	pending	pending	pending	pending	pending	pending
Kelley potato beetle ¹³	Lepidostomatia decolorata	50-52 (D)	When eggs are scattered	2 usually in central US	1st instar 185 DD, 2nd 240 DD, 3rd 300 DD, 4th 400 DD, 5th 475 DD	Adults emerge during the month of May, and possibly into early June.	M. Adults emerge, Jr. Egg laying, larval feeding, Jr. Larval feeding, pupation, A. 1. TB	M. Yellow sticky cards, Jr. Scout for egg masses, Jr. Scout for larvae & egg masses. A. Yellow sticky cards. Scout for larvae and egg masses. 1. TB	Potato	Single rows of early season potatoes as a trap crop may provide some control. But probably insufficient alone.	Vacuum, Crushing eggs, Tilling the soil to expose soil dwelling eggs.	1. Cucumber mosaic virus and 2. Bacterial wilt disease. 3. Potato virus Y. 4. Potato leafroll virus. 5. Potato spindle top virus. 6. Potato tuber necrotic ringspot virus. 7. Potato virus X. 8. Potato virus S. 9. Potato virus M. 10. Potato virus N. 11. Potato virus D. 12. Potato virus R. 13. Potato virus I. 14. Potato virus O. 15. Potato virus P. 16. Potato virus Q. 17. Potato virus U. 18. Potato virus V. 19. Potato virus W. 20. Potato virus Z. 21. Potato virus AA. 22. Potato virus AB. 23. Potato virus AC. 24. Potato virus AD. 25. Potato virus AE. 26. Potato virus AF. 27. Potato virus AG. 28. Potato virus AH. 29. Potato virus AI. 30. Potato virus AJ. 31. Potato virus AK. 32. Potato virus AL. 33. Potato virus AM. 34. Potato virus AN. 35. Potato virus AO. 36. Potato virus AP. 37. Potato virus AQ. 38. Potato virus AR. 39. Potato virus AS. 40. Potato virus AT. 41. Potato virus AU. 42. Potato virus AV. 43. Potato virus AW. 44. Potato virus AX. 45. Potato virus AY. 46. Potato virus AZ. 47. Potato virus BA. 48. Potato virus BB. 49. Potato virus BC. 50. Potato virus BD. 51. Potato virus BE. 52. Potato virus BF. 53. Potato virus BG. 54. Potato virus BH. 55. Potato virus BI. 56. Potato virus BJ. 57. Potato virus BK. 58. Potato virus BL. 59. Potato virus BM. 60. Potato virus BN. 61. Potato virus BO. 62. Potato virus BP. 63. Potato virus BQ. 64. Potato virus BR. 65. Potato virus BS. 66. Potato virus BT. 67. Potato virus BU. 68. Potato virus BV. 69. Potato virus BW. 70. Potato virus BX. 71. Potato virus BY. 72. Potato virus BZ. 73. Potato virus CA. 74. Potato virus CB. 75. Potato virus CC. 76. Potato virus CD. 77. Potato virus CE. 78. Potato virus CF. 79. Potato virus CG. 80. Potato virus CH. 81. Potato virus CI. 82. Potato virus CJ. 83. Potato virus CK. 84. Potato virus CL. 85. Potato virus CM. 86. Potato virus CN. 87. Potato virus CO. 88. Potato virus CP. 89. Potato virus CQ. 90. Potato virus CR. 91. Potato virus CS. 92. Potato virus CT. 93. Potato virus CU. 94. Potato virus CV. 95. Potato virus CW. 96. Potato virus CX. 97. Potato virus CY. 98. Potato virus CZ. 99. Potato virus DA. 100. Potato virus DB. 101. Potato virus DC. 102. Potato virus DE. 103. Potato virus DF. 104. Potato virus DG. 105. Potato virus DH. 106. Potato virus DI. 107. Potato virus DJ. 108. Potato virus DK. 109. Potato virus DL. 110. Potato virus DM. 111. Potato virus DN. 112. Potato virus DO. 113. Potato virus DP. 114. Potato virus DQ. 115. Potato virus DR. 116. Potato virus DS. 117. Potato virus DT. 118. Potato virus DU. 119. Potato virus DV. 120. Potato virus DW. 121. Potato virus DX. 122. Potato virus DY. 123. Potato virus DZ. 124. Potato virus EA. 125. Potato virus EB. 126. Potato virus EC. 127. Potato virus ED. 128. Potato virus EF. 129. Potato virus EG. 130. Potato virus EH. 131. Potato virus EI. 132. Potato virus EJ. 133. Potato virus EK. 134. Potato virus EL. 135. Potato virus EM. 136. Potato virus EN. 137. Potato virus EO. 138. Potato virus EP. 139. Potato virus EQ. 140. Potato virus ER. 141. Potato virus ES. 142. Potato virus ET. 143. Potato virus EU. 144. Potato virus EV. 145. Potato virus EW. 146. Potato virus EX. 147. Potato virus EY. 14					