

## • Advanced Critical Reading – Colony Collapse

According to a 2007 statement before the Subcommittee on Horticulture and Organic Agriculture Committee of the U.S. House of Representatives by May R. Berenbaum, Professor and Head, Department of Entomology at the University of Illinois Urbana-Champaign, pollination by native bees was recently estimated to be worth 3 billion dollars annually in the United States. Other sources estimate pollination to be a 15 billion dollar industry worldwide. Moreover, approximately 3/4 of the 250,000 + species of flowering plants rely on their insect partners – pollinators – for the vital natural process which transfers pollen grains to receptive female plants to effect fertilization.

However, up to 80% of honeybees in 35 states have suddenly, inexplicably vanished, baffling entomologists, beekeepers, farmers, and governments. About 10% of 2.4 million hives disappeared in the U.S. in late 2006 and early 2007 in an enigmatic calamity that has been named “colony collapse disorder,” or CCD. This mysterious killer has wiped out hives in the U.S. and overseas – in Italy, Poland, Portugal, Central, South America, and Croatia. Some have theorized that cell phones disrupt the ability of the insects to navigate – the bees leave the hive, never to return. Others have surmised that a bee virus corresponding to HIV in humans has somehow inculcated itself into the honeybee population. Still others have laid the blame on pesticides, most notably a neurotoxin called imidacloprid – IMD, which has been shown by French researchers to cause disorientation among honeybees. IMD also affects the ability of bees to forage, affecting hive activity. While most French and some American beekeepers consider IMD to be a major suspect in CCD, their opinion is not corroborated by American researchers. U.S. scientists continue to pursue the cause, or amalgam of causes, of the disorder. On September 7, 2007, American researchers reported in the journal *Science* that a newly discovered virus, the Israeli acute paralysis virus, may be a suspect in the catastrophic loss of honeybees. Meanwhile, U.S. beekeepers are urgently requesting expeditious resolution to the crisis in the form of emergency research funding.

The impact of CCD is almost unfathomable. One-third of all food is provided by the pollination of honeybees. In a world without honeybees, there would be almost no fruits or vegetables, except for those hand-pollinated by humans. At their current rate of disappearance, honeybees will cease to exist by the year 2035.

## Questions

1. It can be inferred from the passage that the U.S. pollination industry is
  - A) the top industrial pollinating nation in the world.
  - B) the second pollinating nation in the world.
  - C) among the top three pollinating nations in the world.
  - D) among the top four pollinating nations in the world.
  - E) among the top five pollinating nations in the world.
  
2. In line 20, *corroborated* most closely means
  - A) disputed.
  - B) omitted.
  - C) corrected.
  - D) supported.
  - E) researched.
  
3. Based on the passage, what does CCD cause bees to do?
  - A) Bees no longer leave their hives.
  - B) Bees bring a virus back to the hive.
  - C) Bees get lost and stop pollinating.
  - D) Bees become very active and exhausted.
  - E) Bees suddenly, inexplicably attack their hive mates.

## Answers and Explanations

1. The correct answer is **A**.

- A) Incorrect. According to lines 4–6, pollination by native bees was estimated to be worth 3 billion dollars annually in the United States in a 15 billion dollar industry worldwide. Since 15 billion divided by 3 billion is 5, it can be inferred that the United States is in the top five industrial pollinating nations. So, although it might be the top pollinating nation, that information cannot be inferred from the passage.
- B) Incorrect. According to lines 4–6, pollination by native bees was estimated to be worth 3 billion dollars annually in the United States in a 15 billion dollar industry worldwide. Since 15 billion divided by 3 billion is 5, it can be inferred that the United States is in the top five industrial pollinating nations. So, while it might be the second pollinating nation in the world, that information cannot be inferred from the passage.
- C) Incorrect. According to lines 4–6, pollination by native bees was estimated to be worth 3 billion dollars annually in the United States in a 15 billion dollar industry worldwide. Since 15 billion divided by 3 billion is 5, it can be inferred that the United States is in the top five industrial pollinating nations. So, while the U.S. might be in the top three pollinating nations, that information cannot be inferred from the passage.
- D) Incorrect. According to lines 4–6, pollination by native bees was estimated to be worth 3 billion dollars annually in the United States in a 15 billion dollar industry worldwide. Since 15 billion divided by 3 billion is 5, it can be inferred that the United States is in the top five industrial pollinating nations. So, while the U.S. might be in the top four pollinating nations, that information cannot be inferred from the passage.
- E) Correct. According to lines 4–6, pollination by native bees was estimated to be worth 3 billion dollars annually in the United States in a 15 billion dollar industry worldwide. Since 15 billion divided by 3 billion is 5, it can be inferred that the United States is in the top five industrial pollinating nations.

2. The correct answer is **D**.

- A) Incorrect. *Disputed* means *argued*. Lines 20–21 state that U.S. scientists continue to pursue the cause, or amalgam of causes, of the disorder, because the results of the French are not corroborated by them. This indicates that they would argue with or *dispute* the French diagnosis. So the correct answer cannot be *disputed*.
- B) Incorrect. *Omitted* means *left out*. Since lines 20–21 state that U.S. scientists continue to pursue the cause, or amalgam of causes, of the disorder, it seems that the singular diagnosis of the French has been omitted, so *omitted* cannot be the correct answer.
- C) Incorrect. *Corrected* means *made accurate*. Since lines 20–21 state that U.S. scientists continue to pursue the cause, or amalgam of causes, of the disorder, it seems that the Americans are correcting the diagnosis of the French. So *corrected* cannot be the correct answer.
- D) Correct. *Supported* means *agreed with*. Since lines 20–21 state that U.S. scientists continue to pursue the cause, or amalgam of causes, of the disorder, it seems that the results of the French are not *supported* or *corroborated* by them.
- E) Incorrect. *Researched* means *studied*. Since lines 20–21 state that U.S. scientists continue to pursue the cause, or amalgam of causes, of the disorder, it is clear that U.S. scientists are researching the causes of the disorder. So *researched* cannot be the correct answer.

3. The correct answer is C.

- A) Incorrect. Lines 14–15 state that the bees leave the hive, never to return. So it cannot be correct that the bees do not leave the hive.
- B) Incorrect. While a virus might be the cause, there is no mention that the bees bring a virus back to the hive. According to lines 15–16, others have surmised that a virus corresponding to HIV has somehow inculcated itself into the honeybee population. Since the passage states that the researchers have surmised it, they are not sure that a virus is the cause, so this cannot be the correct answer.
- C) Correct. Lines 14–15 state that the bees leave the hive, never to return. That, with the information from lines 16–20 – that a neurotoxin called imidacloprid – IMD – has been shown by French researchers to cause disorientation among honeybees. IMD also affects the ability of bees to forage, affecting hive activity. Since most French and some American beekeepers consider IMD to be a major suspect in CCD, these must be the symptoms that are exhibited by the bees.
- D) Incorrect. While IMD affects the ability of bees to forage, affecting hive activity, as stated in lines 18–19, there is no mention that the bees themselves become active.
- E) Incorrect. According to line 9, up to 80% of honeybees in 35 states have suddenly, inexplicably vanished. That means they have disappeared. However, they have not suddenly, inexplicably attacked their hive mates.