

STUDENT GUIDE

EVALUATE LESSON 20



Part 1: Our Motivation

Record what we are now trying to explain about the anchor phenomenon.

We are going to revisit Media Claims 11 and 12, the ones about how the dairy system and impacts on biodiversity, and evaluate their validity and accuracy with the new information we have figured out.



Part 2: Evaluate Claims

Sort the four media claims provided to determine if they are accurate, inaccurate, or if they are misleading. Write the title of the claim or the claim number in the appropriate column in the table below.

Accurate	Misleading Claim That Omits Context or Details	Inaccurate
12: Dairies Help Save Tricolored Blackbirds	11: Our Global Food System is the Primary Driver of Biodiversity Loss	

Once all the media claims have been sorted, select ONE media claim and assess its validity based on the evidence we have gathered in this unit. Be sure to use the Look-Fors provided to guide your response.

I think media claim 12 is accurate. It says that dairies help save tricolored blackbirds. It says that their natural habitat is being destroyed, which puts them under threat. The way the dairy system is designed is meant to provide dairy products for consumers. The system was built to do this well. One unintended consequence of this design is that it contributes to a loss of biodiversity. This is especially true with practices such as growing monocultured crops for dairy cattle feed. We saw that the biodiversity in a field of monocultured crop was much less than in a field of undisturbed land. Monocultured land was 0.79 biodiversity index and undisturbed land was 0.90. However, there are practices that the dairy system can use to improve biodiversity. For example, in the article titled "Grazing and Biodiversity" we saw "Metera et al. (2010) found that grazing created favorable conditions for the formation of habitat structure preferred by many endangered birds, small mammals, and invertebrates, positively impacting biodiversity of grasslands." This indicates that a practice such as grazing, when done appropriately, can provide habitat for certain species. If the blackbird's habitat is being wiped out, then perhaps a grazing practice is creating new habitats for the birds. Land with grazing cattle had a biodiversity index of 0.88.





Part 3: Construct a Written Argument

Construct a written argument that answers our Driving Question: “*How does dairy production impact the environment?*” Be sure to use the Look-Fors provided to guide your response.

I think the impact of the dairy industry on the environment is overall somewhat negative. The dairy system is made up of dairy cows raised to produce milk that is processed into dairy products for consumers who depend on agricultural products such as dairy for food. The dairy system was designed to make a lot of products for little cost, but doing so has resulted in downsides that extend beyond the boundary of the design of the system, such as an environmental cost like pollution, social impacts such as health problems for workers, and environmental impacts like chemical pollution, contribution of greenhouse gases to the atmosphere, and loss of biodiversity when land is cleared to grow monocultured crops to feed cattle. The article, “A Review of Potential Public Health Impacts Associated with the Global Dairy Sector,” states that “Livestock production may also be the single largest sectoral source of water pollution. Major sources of water pollution from dairy farms include animal wastes, pharmaceutical residues (e.g., antibiotics and hormones), fertilizers and pesticides used for growing feed crops, and sediment from eroded pastures.” The agricultural industry is also the global leader in methane emissions at over 3 billion tons per year, as stated by Our World in Data. But at the same time, according to Our World in Data, globally the Energy sector contributes 74% of greenhouse gas emissions, while Livestock only contributes 5.8%. So, this means that the dairy industry is probably not as large of an emitter of greenhouse gases as other industries. We also saw that a practice such as grazing can have a positive impact on biodiversity by providing new habitats for wildlife, compared to monocultured crop fields. That article stated that, “Metera et al. (2010) found that grazing created favorable conditions for the formation of habitat structure preferred by many endangered birds, small mammals, and invertebrates, positively impacting biodiversity of grasslands.” So overall, I think the system has some downsides and some benefits.



Part 4: Respectfully Critique an Argument

Share your argument with a peer and respectfully provide a critique of your peer's argument. Use the Critique Notes handout to record your critique. Be sure to use the Look-Fors provided to guide your response.

What did the author explain well?	This argument does a good job of showing both sides of the argument. The writer starts by reviewing the costs and risks of the dairy system then reviews benefits as well as systems changes. They provided some data throughout the argument to back their perspective. They also provide their overall conclusion on the topic of the dairy system impact on biodiversity.
What evidence was included that meaningfully supported the author's argument?	I think the data provided about the relative quantities of greenhouse gases emitted by the dairy and agricultural industries compared to those of other industries clearly demonstrated that the dairy system is not the biggest greenhouse gas contributor.
What questions do you have that can help the author improve on their reasoning or evidence?	<p>If a dairy food system uses buildings that impact biodiversity, what other solutions do you think they need to consider?</p> <p>You suggest that dairy cattle help habitats with their manure. Can you provide data to back that up?</p>
What claims were inaccurate? What would you say to challenge this claim?	<p>I hear your reasoning that the farmer might buy their monocultured feed from another farm. That still means habitats are being decreased elsewhere. What other ways can the dairy food system eliminate the need for monocultured feed?</p> <p>You admit that dairy food systems impact biodiversity by eliminating native habitats. What solutions can the dairy food system come up with to help reestablish those native habitats that they initially destroyed?</p>
What additional information should the author pursue to improve their argument?	<p>Your justification statement would need these three things to make it more credible:</p> <ol style="list-style-type: none"> 1. Data about manure helping soil biodiversity. 2. Data about dairy farmers who use their land to monocrop versus purchasing from other farmers. 3. Solutions to the loss of native habitats from building dairy food systems.