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1s2 Healthy foods produced in circular food systems

CIRCULARITY CANNOT BE ACHIEVED WITHOUT ONE HEALTH INTEGRATION

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Recently proposed efforts to move economic systems toward circularity omit integration of One health, a critical component necessary for complete and proper functioning of the bioeconomy. Failure to fully reflect connectedness of animal and human health to ecological health is a missed opportunity to move the food system toward a sustainable,

circular bioeconomy. A full understanding of circularity in the food system can only be achieved if and when the health of animals, plants, and humans are safeguarded in concert. Importantly, humans and animals are part of the planet's ecology and biomass, and preventing and controlling diseases of plants, animals, and humans are an integral part of sustaining the food system. In a recent example, African Swine Fever decimated the world's largest swine herd in China, reducing the swine inventory by over 40%, a loss of over 1 billion kg of swine body weight. Not only did this cause a 97% increase in pork prices, it demonstrates the interconnectedness of humans, animals, and the environment and exactly how disease can dramatically alter biomass. The potential secondary effects on biomass include collapse of grain markets as feed demand plummets with depopulation on that scale and as suggested by some, fueling the need for alternative (wildlife) protein sources, indirectly contributing to the emergence of the COVID-19 pandemic. This pandemic also illustrates connectedness between human health and food systems, as the strain on the global food systems' ability to deliver food due to breaks in the value chain and limitations to human and animal mobility, have exacerbated food insecurity globally. We contend that researchers and scientists must integrate a One Health approach into the principles and application of circularity and, in so doing, put the soul back into the system. We agree that balance must be sought, but we aim to do so with integrated ecological health at the center.

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