

Analyzing the best aquaculture option for adoption by Oklahoma's aquaculture farmers in current/post COVID-19 pandemic situation: a literature review

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Introduction: The current agricultural production in Oklahoma has been reduced drastically due to the spike of the COVID-19 pandemic situation. The aquaculture sector is likely to be the preferred avenue to cope with this situation in producing fish under a controlled environment. The aquaculture sector is the fastest-growing sector that has rapidly been rising in the United States (U.S.). Aquaculture production is comprised of food fish, ornamental fish, baitfish, mollusks, crustaceans, and other fish production. Among these species, catfish is the most prominent and commonly cultured species in the U.S.

Purpose: The objective of this study is to identify the best aquaculture option for adoption for Oklahoma's aquaculture farmers in the current/post-COVID conditions.

Methods: Preliminary data were taken from secondary sources and thereafter, conducted a meta-analysis.

Results: In 2018, the aquaculture sector has contributed nearly \$1.51 billion to the U.S economy. The U.S. farm-raised catfish sector alone, the majority of which cultured in Alabama, Arkansas, Mississippi, and Texas, has hereafter contributed approximately \$734 million. The U.S per capita fish consumption has also increased from 7.30 kg in 2018 to 7.25 kg in 2017. The U.S farm-raised catfish remained in the eighth position, which was consumed at the rate of 0.25 kg/head/year.

Oklahoma has a rich history of aquaculture production. However, Oklahoma's aquaculture production has dropped sharply during the last few decades due to water scarcity and natural disasters. Currently, there are only 22 licensed aquaculture facilities located in Oklahoma. The COVID-19 pandemic has exacerbated this situation further by halting the overall production. A review study revealed that 90% of the business has been heavily impacted by COVID-19. To revive from these situations, aquaponics, and recirculating aquaculture systems could be the best option for adoption by Oklahoma's farmers.

Significance: The future of the aquaculture sector is promising as it will fulfill the nation's protein security by conforming with the health safety concerns. So far, the aquaculture sector, including both the supplied ready-to-eat fish and the associated production workers, is not the vector for the COVID-19 virus. Hence, this promising sector has the potential that will not only bring new opportunities to the farmers but also enables them to discover ways, which were not perceived before.

Keywords: Aquaculture, Catfish, COVID-19 pandemic, Adoption