

Review of: "Improving agriculture and food security in Africa: Can the one health approach be the answer?"

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Potential competing interests: No potential competing interests to declare.

Title: Improving agriculture and food security in Africa: Can the one health approach be the answer?

Review

General comments

I think the idea of 'one health' needs to be defined in the abstract and earlier in the introduction – I struggled to figure out what the central idea of the paper was. The third paragraph of the introduction says some things about one health, but does not really speak to how the 'approach' will improve 'agriculture and food security'. Food security is a very complex concept with multiple facets (production, access, utilization and stability), and agriculture is a huge idea as well. Stating explicitly in this paragraph 'One health is...' and then 'Applying this concept to agriculture will result in...' etc will help the reader understand the thesis of the paper.

Overall, I felt that the paper is too long as it took too long to get to a simple point – and the paper leaves economics off the table - what is the structure of the economy, should fewer people be doing agriculture and more doing other, productive activities, where should investment go that is new? I would shorten the 'challenges' and 'integrating' sections and invite an economist to collaborate on the paper. Even if the overall message is the same, it is critical that some careful thought be given as to how the 'delicate balance' between food production, environment, human health and use of natural resources can be done without busting the national budget. What resources need to be invested, where? How will this be different than the 100-year old 'agriculture development' activity that Africa has been experimenting with? The practical application of these ideas is also left off the table – more room can be made for these points by shortening the current text.

Specific comments

Introduction:

I think that the orientation of the introduction is too focused on 'production' – there is lots of evidence showing that even if Tanzania and Zambia (name your country here) were to double their food production without any other changes to their

economy that food insecurity and malnutrition would fall substantially. Most food insecure people lack access to land, resources, education, and other entitlements that allow them to buy nutritious and healthy food. Equating food production to food security will result in , given how for example, 37% of Tanzanians live in urban areas, and some of the food they eat is imported from outside the country. Food exports have increased over the past decade from most of sub-Saharan Africa, with limited reductions in food insecurity, which is caused by poverty and lack of entitlements. I would re-orient the first few paragraphs of the introduction to be less focused on total production and more about improving overall efficiency and management of the food system.

‘Climate change variability has led to sharp declines in crop yield, and the emergence of novel pest and diseases, increasing food safety and food supply chain constraints (Hammond et al., 2015).’ This statement is largely not true in many parts of the world. In export zones – Brazil, US, Europe, even China – yields in commercial ag systems have continued to rise and total agricultural production, particularly maize and soy, keep hitting record levels. Warming temperatures have not yet really affected total yields for most crops, with the possible exception of wheat, due to 1) climate impacts have not been particularly strong to-date, and 2) technology improvement has kept up with these changes and have been able to keep yields increasing for ‘crops’ in general. Now if you were to focus on a particular crop/location/climate impact for this statement, it would be easier to defend.

This section ‘The challenges of agricultural production and food insecurity in Africa’ is nice, but it again equates food production with the prevalence of hunger and malnutrition. Exactly how will implementing ‘one health’ approach to ‘improve’ agriculture, and what connection does this have to efforts that will reduce hunger and malnutrition? Focusing the argument at this point is essential, otherwise this section just seems like platitudes.

Also in this section – how is this argument supported: ‘adopting food security strategies and actions which hinges on the integration of one health approach in agriculture.’? There are many existing ‘food security’ strategies which are completely unrelated to agriculture, such as safety net programs (in the US, SNAP food assistance), cash payments based on income, free school breakfasts and lunches or child feeding programs for the malnourished – all these are direct ‘food security strategies’ to reduce malnutrition and hunger. Where does one health come into this?

This sentence – ‘This can be achieved by creating a collaboration between different stakeholders to promote adequate turnover of cheap and nutritious food for the rising population via increased agricultural production (Giller, 2020).’ – Cheap means that domestic farmers get less money for their crop, keeping the income of the whole food sector low, with no money for new equipment or technologies, little promise of higher incomes for young people, etc. This balance between producer and consumer prices, and the promise of investing in other ways of making a living (the ‘service’ economy, manufacturing, trade, etc) that will allow residents to pay for better food and higher food prices, will also allow farmers to invest in higher productivity technology (tractors, improved seeds, chemical fertilizer, etc) which will boost productivity while delivering more food on less land with fewer people. Basic economics, but this kind of thinking is totally absent in this paper.

This sentence – ‘Consequently, human nutrition has improved through increased domestic income and feed diversity (Alders et al., 2014). – is this human ‘feed’ or animal feed? I would rephrase.

Overall, the paper needs more work.