

# Review of: "Ameliorating the Impact of Climate Variability on Pesticide Dynamics and Efficacy"

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**Potential competing interests:** No potential competing interests to declare.

Ameliorating the impact of climate variability on pesticide dynamics and efficacy.

The topic is interesting and the paper proposes some interesting perspectives. However, it should preferably be more focused on technical aspects sticking to the topic, leaving aside general considerations not directly related to the subject, e.g. it is not the place to discuss the justification of the Green House Gas emissions path, or the impact of climate change when it is not related to pesticides effectiveness.

In general terms, the structure of the publication should be revised to include a short description of the broad lines of the considered climate change scenario, a part describing the effect of climate change on pesticides, a part explaining the adverse effect of pesticide-intensive use, and a part on the perspectives.

More specifically:

- If to be kept, in the introduction the mention of the advantage of C4 plants would require a reference and justify what is meant by 'due to their physiological plasticity and superior flexibility in gene composition' – It is advised to take this sentence out, as it is not directly relevant to the topic;
- The same applies to the reference to enhanced weed growth with increased atmospheric CO<sub>2</sub>, as it is not directly relevant to the topic and it would require a more elaborated development related to plants physiology;

The introductions should provide an insight into what follows in a synthetic manner (possibly shorter, with no elements not further detailed in the publication, e.g. the advantage of C4 plants.

The overall numbering should be revised.

After the introduction a first section should present the main considered climate changes, taking elements from section 2.1.6 and 2.1.7.

Section 1.2 related to 'pesticides efficacy' is relevant even though it could be merged with 1.3.

Section 1.3 related to 'factors affecting pesticide efficacy' is relevant, but the way climate change might affect pesticide efficacy is not tackled as intended.

Section 2.1 related to the 'impact of climate change on the ecosystem' is not relevant to the treated topic. Relevant elements should be sorted out should be sorted out and used under point 1.2.

Relevant elements of section 2.1.1 could be moved to section 1.2. The same applies to section 2.1.2 keeping the focus on the increase of pesticide use due to increased leaching.

A separate section can be kept to describe the effect of the intensive use of pesticides. This would include elements of section 2.1.3.

Section 3.1 should be merged under section 1.3 – the subsection can be suppressed and paragraphs consolidated under section 1.3 instead.

Under 3.1 the sentence '85 researchers have observed that certain climatic changes affect pests in different ways' should be further explained or the sentence deleted.

Under the same section the consideration related to agricultural systems diversification should be moved to the perspectives.

Under section 3.1.5 – there is a confusion between genetic engineering as a potential to fight against pests and resistance development due to prolonged exposure to pesticides.

Under section 3.1.6 – The third paragraph about soil loss is not in the topic.

Under section 3.1.7 - the statement is too general.

Under the title of 3.1.8 (to be deleted anyway) a p is missing in the word absorption.

Section 4.1 is pretty repetitive with issues addressed in other parts of the report. Relevant items can be moved where relevant.

The Conclusions and Perspective section should focus on technical limits and solutions.

Attention should be paid to avoid repetitions.