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*Web links to the author's journal account have been redacted from the decision letters as indicated to maintain confidentiality*

30th Jun 23

Dear Professor Hofmann,

Your manuscript titled "Sustainable use of plastics in agriculture" has now been seen by 3 reviewers, and we include their comments at the end of this message. They find your work of interest, but some important points are raised. We are interested in the possibility of publishing your study in Communications Earth & Environment, but would like to consider your responses to these concerns and assess a revised manuscript before we make a final decision on publication.

We therefore invite you to revise and resubmit your manuscript, along with a point-by-point response that takes into account the points raised. Please highlight all changes in the manuscript text file.

We are committed to providing a fair and constructive peer-review process. Please don't hesitate to contact us if you wish to discuss the revision in more detail.

Please use the following link to submit your revised manuscript, point-by-point response to the referees' comments (which should be in a separate document to any cover letter) and the completed checklist:

[link redacted]

\*\* This url links to your confidential home page and associated information about manuscripts you may have submitted or be reviewing for us. If you wish to forward this email to co-authors, please delete the link to your homepage first \*\*

We hope to receive your revised paper within six weeks; please let us know if you aren't able to submit it within this time so that we can discuss how best to proceed. If we don't hear from you, and the revision process takes significantly longer, we may close your file. In this event, we will still be happy to reconsider your paper at a later date, as long as nothing similar has been accepted for publication at Communications Earth & Environment or published elsewhere in the meantime.

Please do not hesitate to contact us if you have any questions or would like to discuss these revisions further. We look forward to seeing the revised manuscript and thank you for the opportunity to review your work.

Best regards,

Alienor Lavergne, PhD  
Associate Editor  
Communications Earth & Environment

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We ask that you ensure your manuscript complies with our editorial policies. Please ensure that the following formatting requirements are met, and any checklist relevant to your research is completed and uploaded as a Related Manuscript file type with the revised article.

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Furthermore, please align your manuscript with our format requirements, which are summarized on the following checklist:

[Communications Earth & Environment formatting checklist](https://www.nature.com/documents/commsj-phys-style-formatting-checklist-article.pdf)

and also in our style and formatting guide [Communications Earth & Environment formatting guide](https://www.nature.com/documents/commsj-phys-style-formatting-guide-accept.pdf) .

**\*\*\* DATA:** Communications Earth & Environment endorses the principles of the Enabling FAIR data project (<http://www.copdess.org/enabling-fair-data-project/> ). We ask authors to make the data that support their conclusions available in permanent, publically accessible data repositories. (Please contact the editor if you are unable to make your data available).

All Communications Earth & Environment manuscripts must include a section titled "Data Availability" at the end of the Methods section or main text (if no Methods). More information on this policy, is available at <http://www.nature.com/authors/policies/data/data-availability-statements-data-citations.pdf>.

In particular, the Data availability statement should include:

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- Accession codes where appropriate
- If applicable, a statement regarding data available with restrictions
- If a dataset has a Digital Object Identifier (DOI) as its unique identifier, we strongly encourage including this in the Reference list and citing the dataset in the Data Availability Statement.

**DATA SOURCES:** All new data associated with the paper should be placed in a persistent repository where they can be freely and enduringly accessed. We recommend submitting the data to discipline-specific, community-recognized repositories, where possible and a list of recommended repositories is provided at <http://www.nature.com/sdata/policies/repositories>.

If a community resource is unavailable, data can be submitted to generalist repositories such as [figshare](https://figshare.com/) or [Dryad Digital Repository](http://datadryad.org/). Please provide a unique identifier for the data (for example a DOI or a permanent URL) in the data availability statement, if possible. If the repository does not provide identifiers, we encourage authors to supply the search terms that will return the data. For data that have been obtained from publically available sources, please provide a URL and the specific data product name in the data availability statement. Data with a DOI should be further cited in the methods reference section.

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href="http://www.nature.com/authors/policies/availability.html">http://www.nature.com/authors/policies/availability.html</a>.

#### REVIEWER COMMENTS:

##### Reviewer #1 (Remarks to the Author):

I had the pleasure to read the manuscript titled 'Sustainable use of plastics in agriculture'. This is a review study aimed at presenting a thorough view of the use of plastics in plant agriculture as well as identifying sustainable applications within the actual international regulatory framework. This is an incisive work for scholars and practitioners, policy makers, and the wider audience.

Few points below can be better addressed, before considering the work for final publication:

1. The abstract mentions '[...] education and training [...]', but I saw little illustrated on this side. The authors refer to the work by King et al (2023) in which education is regarded in terms of the educational level of the interviewees, rather than proper education and training activities suitable to increase awareness on sustainable use of plastics in agriculture. I suggest the authors can deepen knowledge on existing curricula on this matter.

2. lines 111-113 'For example, it is estimated that between 1976-2018, 2.3 million tons of polyurethane- and PE-coated fertilizers were used in Japan, and these helped to control nutrient release, increase nutrient use efficiency, and reduce nutrient loss<sup>17</sup>'. The authors should carefully re-address the above lines since the cited study refers to a University experimental farm than the entire Japan.

##### Reviewer #2 (Remarks to the Author):

The manuscript is interesting and includes novel approaches.  
Some further literature could be considered like [10.3390/agriculture10080310](#).  
The conclusions can be improved, in terms of clarity and the importance of this study in terms of environment

##### Reviewer #3 (Remarks to the Author):

Review of the paper submitted by Hofmann et al.

##### Summary

The manuscript submitted by Hofmann et al. reviewed the current applications of plastic in agricultural processes, and its adverse effects, and suggests different ways of how plastic can be used more sustainably. The authors suggest that plastic use in agricultural practices can be more sustainable by re-collecting and recycling it after its usage and by applying increasingly more biodegradable plastics.

What are the new insights that emerge from this literature synthesis?

The manuscript is generally very well-written, and the references are well-balanced. However, there are some concerns as to what extent the manuscript advances the current knowledge about sustainable agricultural practices with plastic material. The suggestions regarding sustainable plastic usage in agricultural processes in the manuscript are rather vague and probably not all of them are implementable. Hence, the manuscript would benefit from a more detailed description of how the suggested sustainable plastic use in agricultural processes can be implemented. Here are a few examples:

- Lines 246 – 247: " Rates of reuse and recycling of agricultural plastic wastes are currently very low (<10%) and need to be substantially increased. The prioritized management option of plastics after use is reuse (Fig. 4)."

-> Despite saying that the prioritized plastics management option is re-use it remains rather unclear how plastic re-use will be implemented in detail. How can plastic be collected from agricultural soils? Is this implementable? How much energy is needed for this re-collection and is this sustainable?

- Lines 250 – 255: "Plastics that are collectible after use but cannot be reused should be routed to materials resource facilities (MRF) for recycling, or, as the least preferred option, for responsible disposal when the product type and extent of damage does not allow for recycling. Recycling will require dedicated programs that include coordinated and well-distributed collection facilities. Washing procedures at such facilities will need to be optimized to support soiled materials and higher rates of recycling, while being efficient with water use"

-> How do these material resource facilities (MRF) look like? How is the plastic transported to these MRF? What are the transportation and processing costs? Are they sustainable and implementable?

- Lines 296 – 297: "Thus, better techniques and standardization of methods for collection after use, decontamination, and handling are needed to increase recycling."

-> Which ones? Can you make some specific suggestions about which techniques and standardization of methods are needed?

Will the insights of this literature synthesis be of interest to others in the community?

Summarizing the current knowledge about the use of plastic in agricultural practices and evaluating how these processes can be made more sustainable will be of high interest to others in the research community. However, as mentioned above, the manuscript would be even of higher interest if the made suggestions regarding the sustainable use of plastic in agricultural practices would be more specific and explained in more detail how they can be implemented. I think this would influence the thinking in the research community and trigger some change in handling plastic.

Structure of the manuscript

When reading the paper, it is not immediately clear that this manuscript is aimed to be a review since it is neither obvious from the title nor from the abstract. Only in line 50, do the authors state that this manuscript is a review-type manuscript. Additionally, also the goal of this review manuscript is poorly explained, only with one sentence in lines 68-69. It would be helpful for the reader if the goals of the study would be explained in more detail along with an overview of the

structure of the paper.

Response to the reviewers' comments to "Sustainable use of plastics in agriculture"  
(COMMSENV-23-0640).

**Black = Original comment**

**Red = Point-by-point response**

*Green italic = Revised text in the manuscript, including line numbers  
(+ additional revisions in the revised manuscript)*

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We appreciate the reviewers' feedback and we thoroughly addressed all comments point by point. We hope that the revised manuscript is acceptable for publication and thank you for your consideration and valuable feedback.

### **Response to referees:**

Reviewer #1 (Remarks to the Author):

I had the pleasure to read the manuscript titled 'Sustainable use of plastics in agriculture'. This is a review study aimed at presenting a thorough view of the use of plastics in plant agriculture as well as identifying sustainable applications within the actual international regulatory framework. This is an incisive work for scholars and practitioners, policy makers, and the wider audience.

We thank the reviewer for the overall very positive feedback.

Few points below can be better addressed, before considering the work for final publication:

1. The abstract mentions '[...] education and training [...]', but I saw little illustrated on this side. The authors refer to the work by King et al (2023) in which education is regarded in terms of the educational level of the interviewees, rather than proper education and training activities suitable to increase awareness on sustainable use of plastics in agriculture. I suggest the authors can deepen knowledge on existing curricula on this matter.

We thank the reviewer for bringing this up and revised the manuscript accordingly:

*Line 420-449 (referring to the revised manuscript):*

*For farmers specifically, recent work showed that 80% of Irish farmers reported an increase in plastics use and 88% reported concern about negative environmental impacts<sup>70</sup>. Disposal practices varied widely, depending on materials in use, reported knowledge, perceptions of costs and facilities, and education level, but links between general education level and behavior are inconsistent<sup>91</sup>.*

*Moreover, while some attempts are being made to provide specific training, for example "Plastics in Agriculture Lessons - Preventing Plastic Pollution"<sup>92</sup>, to the best of our knowledge, there are currently no comprehensive programs regarding the life cycle implications of plastics and practical know-how on new skills and practices. Such new training programs should be addressed to diverse stakeholders and cover all life cycle phases of plastics. Crucially, such programs should not just teach factual*



*knowledge, but integrate best practice in line with psychological approaches that emphasize the importance of factors beyond mere knowledge, such as motivations, norms, and values in predicting behavior change<sup>93</sup>.*

*Thus, the reduction of plastic pollution is a question of perceptions and behavior, as well as of the materials available, production practices on farms, and contextual constraints. It would be useful to quantify the variance attributable to different behavioral practices to determine the importance of this particular lever in agriculture and along the food supply chain. Future work to reduce plastic pollution should build on existing approaches from soil conservation behaviors and environmental stewardship and must better capture the interplay between environmental and social processes<sup>94,95</sup>.*

2. lines 111-113 'For example, it is estimated that between 1976-2018, 2.3 million tons of polyurethane- and PE-coated fertilizers were used in Japan, and these helped to control nutrient release, increase nutrient use efficiency, and reduce nutrient loss<sup>17</sup>'. The authors should carefully re-address the above lines since the cited study refers to a University experimental farm than the entire Japan.

We thank the reviewer for bringing this up. The estimation in the paper by Katsumi et al. 2021 was from the Japanese Association of Agriculture and Forestry Statistics. We revised the manuscript accordingly:

**Line 118:**

*For example, it is estimated by the Japanese Association of Agriculture and Forestry Statistics that between 1976-2018, 2.3 million tons of polyurethane- and PE-coated fertilizers were used in Japan, and these helped to control nutrient release, increase nutrient use efficiency, and reduce nutrient loss<sup>18</sup>.*

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**Reviewer #2 (Remarks to the Author):**

The manuscript is interesting and includes novel approaches.  
Some further literature could be considered like 10.3390/agriculture10080310.  
The conclusions can be improved, in terms of clarity and the importance of this study in terms of environment

We thank the reviewer for the overall very positive feedback. We included the mentioned publication from Maraveas 2020. We are confident that the cited literature covers the field well and add several additional citations.

We have thoroughly revised the concluding section of this paper, aiming to enhance clarity and importance. To achieve this, we have divided the content of the last paragraph into two distinct sections: one focusing on "Renewable energy production and sources" (lines 451-468) and another addressing "Regulatory frameworks and incentives" (lines 471-494).

Additionally, we have included a concluding remark emphasizing that the implementation of the proposed actions will contribute significantly to mitigating plastic pollution associated with agricultural plastic use. It now reads:

**Line 519 - 526:**

*Plastics are essential in modern agriculture, aiding in weed and pest control, water conservation, improving crop quality and yield. While providing agronomic benefits, their production, improper disposal, loss during operations, or abandonment in fields and farmland can pose significant environmental risks. To mitigate these negative impacts, responsible and sustainable utilization of plastics is imperative. Achieving sustainability in agricultural plastic usage necessitates a comprehensive approach, encompassing rational use, technological advancements in reuse and recycling, adoption of less toxic and biodegradable materials, educational outreach, social and economic incentives, and legislative enforcement.*

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Reviewer #3 (Remarks to the Author):

#### Summary

The manuscript submitted by Hofmann et al. reviewed the current applications of plastic in agricultural processes, and its adverse effects, and suggests different ways of how plastic can be used more sustainably. The authors suggest that plastic use in agricultural practices can be more sustainable by re-collecting and recycling it after its usage and by applying increasingly more biodegradable plastics. What are the new insights that emerge from this literature synthesis? The manuscript is generally very well-written, and the references are well-balanced. However, there are some concerns as to what extent the manuscript advances the current knowledge about sustainable agricultural practices with plastic material. The suggestions regarding sustainable plastic usage in agricultural processes in the manuscript are rather vague and probably not all of them are implementable. Hence, the manuscript would benefit from a more detailed description of how the suggested sustainable plastic use in agricultural processes can be implemented. Here are a few examples:

- Lines 246 – 247: " Rates of reuse and recycling of agricultural plastic wastes are currently very low (<10%) and need to be substantially increased. The prioritized management option of plastics after use is reuse (Fig. 4)."

-> Despite saying that the prioritized plastics management option is re-use it remains rather unclear how plastic re-use will be implemented in detail. How can plastic be collected from agricultural soils? Is this implementable? How much energy is needed for this re-collection and is this sustainable?

- Lines 250 – 255: "Plastics that are collectible after use but cannot be reused should be routed to materials resource facilities (MRF) for recycling, or, as the least preferred option, for responsible disposal when the product type and extent of damage does not allow for recycling. Recycling will require dedicated programs that include coordinated and well-distributed collection facilities. Washing procedures at such facilities will need to be optimized to support soiled materials and higher rates of recycling, while being efficient with water use"

-> How do these material resource facilities (MRF) look like? How is the plastic transported to these MRF? What are the transportation and processing costs? Are they sustainable and implementable?

- Lines 296 – 297: "Thus, better techniques and standardization of methods for collection after use, decontamination, and handling are needed to increase recycling."

-> Which ones? Can you make some specific suggestions about which techniques and standardization of methods are needed?

Will the insights of this literature synthesis be of interest to others in the community?

Summarizing the current knowledge about the use of plastic in agricultural practices and evaluating how these processes can be made more sustainable will be of high interest to others in the research

community. However, as mentioned above, the manuscript would be even of higher interest if the made suggestions regarding the sustainable use of plastic in agricultural practices would be more specific and explained in more detail how they can be implemented. I think this would influence the thinking in the research community and trigger some change in handling plastic.

We thank the reviewer for the valuable feedback and appreciate the opportunity to address the concerns.

Managing agricultural plastic use and reuse is a complex issue due to the diverse applications of plastics in the agricultural sector, and some agricultural plastics pose challenges in terms of reusability. We agree that including specific examples will help garner more interest from others in the community.

In the revised manuscript, we propose prioritizing the elimination of problematic agricultural plastics. Specifically, we recommend banning oxo-degradable mulches, restricting the use of harmful polyvinyl chloride, and phasing out intentionally added microplastic applications. These recommendations can be incorporated into the ongoing Plastics Treaty negotiations.

Materials recovery facilities (MRFs) play a critical role in processing recyclable materials, including agricultural plastics, to provide raw materials for new product manufacturing. The operations of typical MRFs have been extensively described in the literature, such as the work by Li et al., 2022 (ref. 57 in the manuscript). MRFs that handle "clean" or high-value plastics like PET or HDPE generally yield recyclable materials with higher value. Conversely, MRFs dealing with "dirty" or low-value plastics, such as soiled agricultural plastics, require washing or rinsing facilities and usually produce recyclable materials with lower value and less demand in the marketplace. Numerous studies have documented the challenges associated with recycling agricultural plastic waste in various jurisdictions (see refs. 67-69). These studies highlight the frequent contamination and physical degradation of agricultural plastic waste, with only a limited number of jurisdictions having suitable recycling programs, either through legislation or voluntary initiatives. They also emphasize the need for on-farm preparation to remove soil contamination and other debris before collecting agricultural plastic waste for recycling.

However, there are promising avenues for recycling agricultural plastic waste suggested by other studies. For instance, Picuno et al., 2020, outline decontamination (rinsing) protocols for agrichemical containers, making them suitable for reuse or mechanical recycling. Mayanti and Helo (2022) estimate the economic viability and environmental benefits of collecting bale wrap films (which are typically less soiled compared to ground-collected mulch films) from farms in Finland. Madrid et al. (2022) propose the recycling of plastic mulch films through pyrolysis to produce fuels or polymers, as thermal treatment remains unaffected by the presence of soil or other contaminants. They also suggest the feasibility of on-site cleaning of plastic mulch films using mechanical rotary brooms or manual methods on dry days, which facilitates collection and recyclability.

To the best of our knowledge, no studies have specifically addressed the monetary costs of preparing and transporting agricultural plastic waste to recycling facilities. However, it is reasonable to assume that transportation costs would be comparable to those associated with residential plastic recycling per kilometer. Costs would vary significantly among jurisdictions due to factors such as labor costs and transportation distances to collection facilities. It is important to note that the sustainability and implementability of agricultural plastic waste recycling would likely improve as domestic recycling capacity increases. This aspect is being considered and negotiated in the Plastics Treaty, which aims to address the full life cycle of plastics, including the need for end-of-life recyclability, encompassing agricultural plastics.

We have revised the manuscript accordingly, with numerous specific examples, and hope our response clarifies the various aspects of agricultural plastic waste recycling and highlights potential avenues for improvement.

**Lines 253 – 258:**

*The rates of reuse and recycling for agricultural plastic waste are currently very low (<10%) and need to be substantially increased. In cases where the reuse of agricultural plastics is challenging, it is imperative to prioritize the elimination of problematic types. For instance, we strongly advocate for the prohibition of oxo-degradable mulches, the restriction of harmful polyvinyl chloride usage, and the phasing out of intentionally added microplastic applications (see Fig. 4).*

**Lines 266 – 276:**

*After collection, non-reusable agricultural plastics should undergo a rigorous cleaning process to eliminate soil contamination and other debris before being sent to materials resource facilities (MRF) for recycling. Some agricultural plastics, such as agrichemical containers, can be effectively decontaminated and reused<sup>54</sup>. Economic feasibility and environmental benefits can be realized by collecting bale wrap films, which are typically less soiled compared to ground-collected mulch films<sup>55</sup>. Additionally, plastic mulch films can be recycled through pyrolysis to produce fuels or polymers, as the presence of soil or other contaminants does not affect this thermal treatment process<sup>56</sup>. To facilitate agricultural plastic recycling, it is essential to establish dedicated programs either through legislation or voluntary initiatives, encompassing well-coordinated and widely accessible collection facilities. If agricultural plastic waste is excessively contaminated or physically degraded, it should be appropriately disposed of in a landfill, but this option is the least desirable.*

**Line 327 - 336:**

*For plastic mulch films, the major obstacle to recycling is the contamination with soil adhering to the plastics when they are recovered from the field after harvest. Soil and plant residue contamination can account for up to 80% of the total weight of plastic materials, while existing recycling facilities require contamination levels below 5%<sup>56</sup>. Therefore, it is crucial to develop effective techniques for removing soil and plant residues from plastic films. These techniques may involve mechanical or manual cleaning processes and minimizing soil adhesion. Ideally, they should be implemented directly on-site at the farm to reduce transportation costs, using mechanical rotary brooms or manual methods on dry days, which facilitate collection and recyclability<sup>56</sup>. Consequently, there is a pressing need for improved techniques and standardized methods for post-use collection, decontamination, and handling to enhance recycling<sup>67,69,70</sup>.*

**Structure of the manuscript**

When reading the paper, it is not immediately clear that this manuscript is aimed to be a review since it is neither obvious from the title nor from the abstract. Only in line 50, do the authors state that this manuscript is a review-type manuscript. Additionally, also the goal of this review manuscript is poorly explained, only with one sentence in lines 68-69. It would be helpful for the reader if the goals of the study would be explained in more detail along with an overview of the structure of the paper.

We thank the reviewer for their insightful and constructive comments. Consequently, we have modified the introduction accordingly and relocated the aim of the paper to line 32. Additionally, we have included a detailed overview of the paper's structure within the first paragraph.

**Line 32 - 37:**

*The aim of this review is to present a comprehensive and balanced assessment of the advantages and drawbacks associated with the utilization of plastics in agriculture, with a specific focus on plant agriculture. In addition to inspecting current applications, benefits, adverse effects, and risks, we specifically address the requirements for technological advancements, incentives and regulations, and social processes that could contribute to mitigating plastic pollution and identify pathways toward more sustainable use of plastics in agricultural practices.*

28th Jul 23

Dear Professor Hofmann,

Thanks for resubmitting your Review titled "Sustainable use of plastics in agriculture". In light of your revisions, I am delighted to say that we are happy, in principle, to publish it in Communications Earth & Environment under a Creative Commons 'CC BY' open access license without charge.

We hope you might be willing to make some editorial changes that will ensure accessibility to our broad audience and some format changes so that your manuscript complies with our house style.

#### EDITORIAL REQUESTS:

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\* Please check whether your manuscript contains third-party images, such as figures from the literature, stock photos, clip art or commercial satellite and map data. If any of the display items in your manuscript (figures, tables, boxes or movies) include images that are the same as, or are adaptations of, previously published images, please fill in the [Third Party Rights Table](http://www.nature.com/licenceforms/snl/thirdpartyrights-table.doc), and return to us when you submit your revised manuscript. This information will enable us to obtain the necessary rights to re-use such material. If we are unable to obtain the necessary rights to use or adapt any of the material that you wish to use, we will contact you to discuss alternative options.

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\* The preface, of less than 100 words, should serve to whet the reader's appetite. It is an advertisement for the article, not a summary, and must therefore avoid specialist terms and be unreferenced. It should, however, deliver the main message of the review.

\* Please organize the main text into three main sections: a brief (two to three paragraph) introduction; your review of the topic; and a forward-looking ending.

\* The introduction should begin by giving sufficient background knowledge to appreciate the Review and should end with a summary of the key points together with the main conclusions.

\* The remainder of the main text should be organized by subheadings to guide the reader around the Review. Each subheading must be brief (less than 60 characters) and must not contain punctuation. There should be no more than two levels of subheadings.

\* The final section should not summarize the Review, but should give your perspective on future work (new directions or outstanding problems, for example).

\* Reference citations are limited to 100, all of which should be accepted or published work. We ask that you select the most significant 5–10% of references in your list for highlighting, and add a single sentence in bold after each of these references to describe the main result and its significance.

\* References must be cited in the order they appear in the text, tables, figure legends, and, finally, boxes.

\* Figures should be simple and informative — multi-part figures are best avoided. Boxes should occupy no more than half a page in the PDF (less than 500 words) and may include a figure.

\* All display items must have a concise title and, in addition, figures should have an informative legend (no more than 250 words) that describes the parts, symbols and colours.

\* Production-quality versions of all figures, supplied as separate files. To ensure the swift processing of your paper please provide the highest quality, vector format, versions of your images (.ai, .eps, .psd) where available. Text and labelling should be in a separate layer to enable editing during the production process. If vector files are not available then please supply the figures in which ever format they were compiled in and not saved as flat .jpeg or .TIFF files. If your artwork contains any photographic images, please ensure these are at least 300 dpi.

\* If you wish, you may also submit a visually arresting image, together with a concise legend, for consideration as a 'Hero Image' on our homepage. The file should be 1400x400 pixels and should be uploaded as 'Related Manuscript File'. In addition to our home page, we may also use this image (with credit) in other journal-specific promotional material.

\* Your paper will be accompanied by a two-sentence editor's summary, of between 250-300 characters, when it is published on our homepage. Could you please approve the draft summary below or provide us with a suitably edited version.

Plastic needs to be used more sustainably in agricultural practices, for example by recovery and reuse, and by increasingly applying biodegradable plastics, suggests a literature synthesis on structural polymers in agriculture.

#### SUBMISSION INFORMATION:

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\* A cover letter describing your response to our editorial requests.

\* A separate document detailing your point-by-point response to any issues raised by our referees (please include the referees' comments in this document).

\* The final version of your text as a Word or TeX/LaTeX file, with any tables prepared using the Table menu in Word or the table environment in TeX/LaTeX and using the 'track changes' feature in Word.

\* Production-quality versions of all figures, supplied as separate files. Photographic images should be 300 dpi in RGB format (.jpg, TIFF or native Photoshop format) and any labels/scale bars included in a

separate layer from the image. Line art, graphs and schemes should be vector format (.ai, .eps, .pdf); Adobe Illustrator files are preferred and will minimize production time. Any chemical structures or schemes contained within figures should additionally be supplied as separate Chemdraw (.cdx) files.

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**We hope to hear from you within two weeks; please let us know if the process may take longer.**

**Best regards,**

**Alienor Lavergne, PhD**



**Associate Editor**  
**Communications Earth & Environment**