

## Opinion

## Reassessing science communication for effective farmland biodiversity conservation

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**Integrating biodiversity conservation into agriculture is a pressing challenge promoted by conservationists. Although biodiversity can also provide important benefits to farmers, the adoption of biodiversity-enhancing measures is lagging behind the scientific evidence. This may partially be related to the way scientists position themselves. If scientists do not convincingly communicate about the implications of their evidence, other interested stakeholders will drive the conversations. To increase societal impact, scientists must understand the complex communication environment and take an informed and strategic position. We describe the prevailing conservation and farming narratives, highlighting how the term ‘biodiversity’ can be used to start dialogues between parties with conflicting demands and exemplifying how scientists can build effective narratives.**

**Effective communication about biodiversity-friendly farming is urgent**

Humanity is facing the challenge of feeding an increasing population without causing more environmental damage [1,2]. We need to speed up action because the consequences of habitat loss and climate change are already threatening both biodiversity and food security [3,4]. Society and policymakers are therefore increasingly interested in transitioning toward more sustainable food systems [5]. Despite considerable debate, most scientists agree that the agricultural footprint on biodiversity, soil, water, and air needs to be reduced, whereas production efficiency needs to be improved [6]. This implies halting the conversion of (semi)natural habitat to agriculture, diminishing agricultural dependency on external outputs, and reducing food loss and waste while accounting for aspects related to universal access to healthy diets [7].

New strategic agendas are being deployed to mainstream biodiversity management across sectors [8,9], specifically in agriculture [10]. Promoting biodiversity as a key element in agriculture not only has conservation purposes but also is essential to guarantee nature’s contributions to people through the provision of ecosystem services such as pollination, soil fertility, and pest control. However, despite the growing evidence highlighting the benefits of integrating biodiversity management into farming practices [11,12] and international policy efforts to promote this [13], the uptake of science-based **biodiversity-friendly farming** (see [Glossary](#)) is slow at best [14,15]. This may at least partially be caused by the main research focus and outreach strategies of the scientific community not always being aligned with farmers’ perceptions and needs [12,16], precluding an effective and engaging communication.

To promote practical and operational biodiversity-friendly farming, scientists inevitably need to join forces with other stakeholders [17]. Scientists have often been criticized for hiding away in ivory towers, disconnected from everyday life problems. For example, many papers on biodiversity conservation on farmland end with vague statements without specifying how those can translate to agricultural practices [18–20]. Fortunately, this is changing rapidly. Worldwide, translational research for

**Highlights**

Biodiversity conservation on farmland is the result of the interplay of many different stakeholders.

Most stakeholders have developed unique communication narratives that support their own worldviews and serve their interests.

Societal dissemination of scientific results inevitably lands in the playing field of the narratives from other stakeholders.

Presenting evidence without communicating the implications risks inappropriate use of scientific results.

Farmland biodiversity conservation scientists need clear, evidence-based communication narratives to improve societal impact.

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sustainability is gaining momentum [21–23], including scientists as legitimate stakeholders with a clear voice in the societal debate. The demands on scientists to communicate with nonscientists are growing. Especially ecologists and agronomists working at the interface of farming and biodiversity conservation are spending a rapidly increasing proportion of time communicating about their research to address desired conservation or sustainable goals. However, the forces at play in communication with nonscientist stakeholders are markedly different from the more formalized rules of scientific communication but are the ones that can strongly influence the societal impact scientists have.

For optimal societal impact, scientific knowledge transfer should do more than just enumerate evidence [24]. Changing human behavior is extremely complex, because humans are influenced by their social, material, economic, and cultural contexts [25]. Hence, impactful results need to present evidence in tailored, clear, and inspiring messages. Unfortunately, researchers are rarely trained to be effective communicators. **Effective communication** seeks to connect with target audiences by considering their needs and understanding their relevant contexts [26]. In the case of biodiversity-friendly farming, there is a wide range of potential audiences comprising, among others, farmers, agribusiness, retailers, and consumers. These audiences often require an engaging and strategic narrative.

**Narratives** are subjective and generally used to influence people in a desired way, but they can (and should) be based on objectively obtained scientific evidence. However, evidence can always be framed to support the interests of the narrator. In fact, different parties can even use the same piece of evidence in support of their opposing narratives. Conservation science is not neutral in this regard either. It has an inherently subjective component; it has desired (more biodiversity) and undesired (less biodiversity) outcomes. The different and often conflicting interests of different stakeholders partly explain the wide range of narratives about conservation and farming that are currently used (see Box 1) [27]. Understanding this complex communication arena is important because ignoring or incorrectly connecting to existing narratives may counteract the societal impact scientists aim to achieve.

For a scientist, **science communication** is rarely a full-time job. Therefore, we generally lack a clear consideration of how our results can best be linked to the worldviews and perceptions of the people we try to reach [28]. By contrast, many stakeholders in the farming arena use and develop their own narratives, often with the help of communication professionals, to safeguard their interests, such as economic profits. Although it is important that scientists listen to stakeholders from the farming sector and engage in knowledge coproduction and codissemination of the results [29], we should nevertheless develop our own independent communication strategies. This does not imply ignoring other stakeholders, but rather involves clear positioning of the implications of scientific studies within the context provided by other stakeholders, pursuing accuracy and plausibility. By doing so, the evidence from scientific studies will stand a better chance of being heard by the targeted stakeholders amid the many competing narratives with different levels of support and value presented by different stakeholders.

To help scientists working on biodiversity-friendly farming navigate the complexities of impactful communication in a research field characterized by societally conflicting interests, we first identify the currently prevailing biodiversity conservation and farming narratives. We then propose the term ‘biodiversity’ as a **boundary concept** that can facilitate starting dialogues among stakeholders with contrasting interests. Finally, we demonstrate how scientists can develop their own narratives to enhance effective communication.

## Glossary

**Biodiversity-friendly farming:** any type of agriculture that specifically aims to maintain or promote biodiversity.

**Boundary concept:** a loose and flexible concept used in different social realities that represents a common reference point, allowing stakeholders with different backgrounds to communicate and collaborate, creating shared goals.

**Corporate farming:** types of agriculture conducted by multinational corporations or companies, where site managers and farmworkers rather than farmers carry out agricultural practices.

**Effective communication:** the process of transmitting information, ideas, opinions, and knowledge in a way that enhances listening, understanding, and the taking of action and that results in messages being received with clarity and purpose.

**High-input farming:** any type of agriculture that is being based primarily on external inputs such as fuel, fertilizers, and pesticides.

**Narratives:** communication tools that explain events in a logical way and that define and position actors, set the context, and devise the framework to delineate objectives and prescribe action.

**Science communication:** a wide range of communication activities that connect science and society. Common goals of science communication include informing nonexperts about scientific findings, raising public awareness of and interest in the topic under study, influencing people’s behaviors, informing public policy, and engaging with diverse communities to address societal problems.

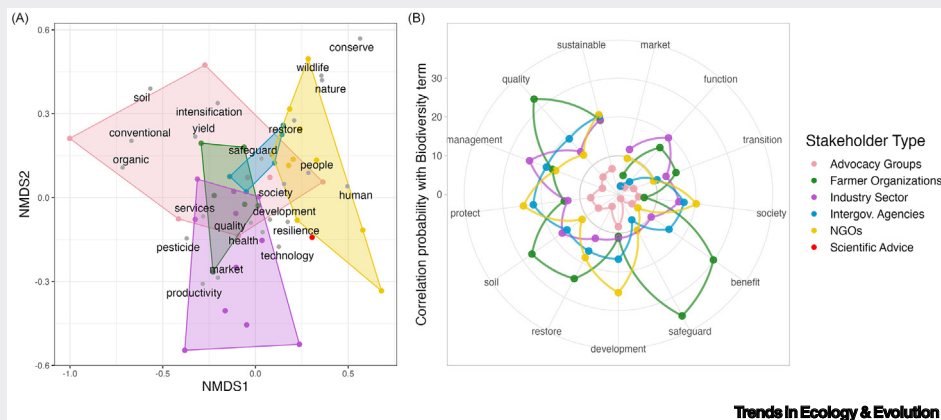
### Box 1. Key narratives of different stakeholders in the biodiversity conservation-farming arena

To illustrate how different stakeholders position themselves along the narratives continuum, we use Europe as an example because biodiversity conservation in farmland is a topic of extensive debate in science as well as society. We have analyzed a total of 5988 digital press releases and news texts covering the period of 2015–2020 from the webpages of 40 farming-related European organizations that have recognition for representing stakeholders in decision-making. We have looked at their positioning based on their use of selected keywords using text mining and multivariate analysis (see supplemental information online for more detail).

Our results show that environmental nongovernmental organizations (NGOs), the industry sector, and advocacy groups use narratives that are predominantly characterized by distinct keywords (Figure 1A). ‘Nature,’ ‘wildlife,’ and ‘restore’ are used commonly in press releases and news items of NGOs, aligned with conservationist terminology. Stakeholders from the industry sector often mention ‘market’ and ‘productivity’ in their communication, lining up with productivism vocabulary, and advocacy groups can be distinguished by writing about ‘conventional,’ ‘organic,’ and ‘soil,’ reflecting on agronomic topics. With respect to word use in their communications, farmer organizations are located firmly in the middle. Their use of keywords shows considerable overlap with industry and advocacy groups; by contrast, there is no overlap with the terminology used by NGOs and scientific advice; however, only one organization was considered in the latter that commonly employ topics from a sustainable development framework.

In a second analysis, we focused on press releases and news items that did contain the keyword ‘biodiversity’ and analyzed which other keywords were most frequently co-occurring (Figure 1B). This shows that when farmer organizations do communicate about biodiversity, they seem to place it most frequently in a functional context (‘benefiting,’ ‘soil,’ ‘quality,’ ‘safeguarding’). Conservation NGOs almost show an opposite pattern, with biodiversity most frequently being mentioned together with ‘protect,’ ‘society,’ and ‘development.’ The industry sector is closer to economic narratives talking about ‘market,’ ‘management,’ and ‘functions’ when referring to biodiversity, whereas in advocacy groups, the ‘biodiversity’ usage seems relatively scarce. Intergovernmental agencies show a steadier co-occurrence of these keywords with the term ‘biodiversity,’ but ‘development’ and ‘protect’ detach.

A deeper analysis of how the biodiversity-aligned terms influence behavior could provide useful insights into how to frame messages to reach different audiences [66].



**Figure 1. Stakeholder positioning in the communication environment.** (A) Nonmetric multidimensional scaling (NMD) ordination based on word frequency of selected keywords (gray dots; only some keywords are named to allow legibility). Each polygon represents a different stakeholder type (see legend). Colored dots locate each studied organization for each stakeholder type. NMD1 axis displays a gradient from agronomic to sustainable development terms, whereas the NMD2 axis exhibits a gradient from production toward conservationist topics. (B) Chart representing per stakeholder type the probability of keywords co-occurring with the term ‘biodiversity’ more often than expected. Data were derived from 363 digital press releases and news texts that contained the term ‘biodiversity’ at least five times. The number of times the term ‘biodiversity’ used was as follows: farmer organizations, 128 times in 13 texts; industry sector, 165 times in 13 texts; intergovernmental agencies, 1558 times in 139 texts; advocacy groups, 899 times in 67 texts; and NGOs, 1348 times in 131 texts (see supplemental information online for more details).

### Navigating the biodiversity conservation and farming narratives

How to promote conservation while maintaining yields represents a so-called wicked problem that does not have a single, straightforward solution and that has consequences that go beyond the environmental dimension [30]. How to best conserve biodiversity is open to interpretation and debate and strongly depends on a person's occupation and worldview. As a result of social and cultural processes and conflicts, conservation discourses have evolved in different parts of the world and through the decades from 'nature for itself,' 'nature despite people,' to 'nature for people,' and recently 'nature and people' [31]. Thus, many narratives with their own arguments have been developed (see Figure 1 for a conceptual summary). Here we discuss some of the most common ones in the farming-conservation debate.

Anthropocentric narratives are currently widely being used to argue for biodiversity conservation. They fundamentally state that safeguarding biodiversity is important because it provides essential services to humankind. According to this narrative, biodiversity should be considered an essential factor supporting agricultural production [32,33]. However, most farmers, and especially those implementing **high-input farming**, do not perceive any economic benefits from biodiversity because private ecosystem service benefits are often outweighed by the costs of enhancing biodiversity [34,35]. Enhancing biodiversity on farms does generally promote public goods such as wildlife conservation or landscape aesthetics. However, economic considerations often take precedence among the criteria farmers use to make decisions. As a result, the anthropocentric narrative is not very convincing to most farmers. Using it may even signal to farmers a lack of understanding of real-world farming complexities, mainly determined by the economic narrative [36].

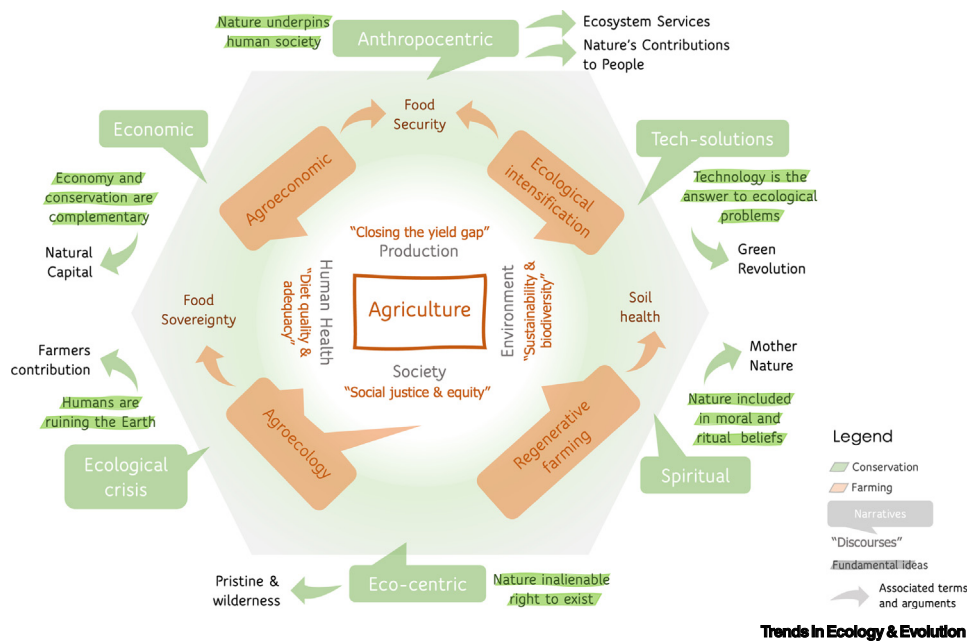


Figure 1. Conceptual framework of the biodiversity conservation and farming narratives. Different conservation narratives are presented in bubbles. Fundamental ideas behind each conservation narrative are underlined. Arrows indicate common associated terms and arguments of each narrative. Farming discourses encompassing agriculture dimensions are presented with quotation marks. Green depicts biodiversity conservation, and orange depicts farming storylines (see Legend).

Especially in areas where conservation conflicts have emerged, such as Eastern Africa, Western Amazonia, or the Southeast Asian Archipelago [37], questions are being raised for whom and for what to conserve [38,39]. Alternative narratives have been developed, emphasizing topics such as governance quality, equity, or the extension of rights for nonhuman entities and future generations. These subjects, mostly elaborated in developing countries [40–42], reinforce the morality of care and the interdependency with nature, as advocated by Indigenous people and local communities [43,44], contributing to spiritual and identity narratives [45,46]. Despite some of these narratives now being adopted by scientists and societal stakeholders in Western countries [47], they still do not play a major role there [48]. The debate on which narrative for biodiversity conservation is most valid, powerful, or convincing is ongoing [49,50].

Farming discourses have also evolved through time, and the demands for action have broadened [7] from ‘closing the yield gap,’ still a widely used argument in regions such as Sub-Saharan Africa or South Asia, toward ‘diet quality and adequacy,’ a common narrative in Southeast Asia or the Caribbean region; ‘social justice,’ commonly used by the Via Campesina movement [51]; and ‘environmental sustainability,’ lively debated among European and North American policy-makers. However, the dominant agroeconomic narrative usually deploys arguments such as food security framed under capitalistic conceptions disseminated by high-input and **corporate farming** stakeholders [52,53]. These types of farming are spreading steadily not only in Western countries but much more rapidly in large areas of Asia, Latin America, and Africa [54–57].

Based on the Western intellectual tradition [53], the agroeconomic narrative considers nature ruled by ‘mechanistic relationships’ and frames farming under the ideas of ‘progress and control’ [58]. According to this paradigm, integrating biodiversity conservation in mainstream farming is dependent primarily on economic incentives (e.g., higher prices for wildlife-friendly products) and regulatory instruments (e.g., higher taxes on unsustainable inputs, prescribing farming practices) [12]. Examples that support this paradigm include the set-aside regulation that had significant positive effects on farmland biodiversity, although it had been designed to reduce excess food production [59]. This worldview did not initially consider the ecosystem processes, functions, and services that are regulated by biodiversity. Proponents of ecological intensification of agriculture [33,60] upgraded this viewpoint by leveraging ecosystem services to sustain agricultural production and reducing its environmental footprint by relying more on ecological processes. Nevertheless, ecological intensification does not challenge the economic rationale of industrial farming, such as market prices or lowering production cost. Thus, this approach has been criticized by some proponents of agroecology because it does not necessarily lead to more self-sufficient agricultural systems [61].

Agroecology was first defined as the application of ecological principles to agricultural systems and practices, or the science providing the evidence base for this. However, this definition has evolved through time, and its definition varies, depending on the context [62]. For example, agroecology can be considered to be mainly a scientific discipline (e.g., in Germany), mainly an agricultural practice that applies ecological principles (e.g., in France), or mainly a political and social movement (e.g., in Brazil, India, or Senegal) [63]. Some forms of agroecology embrace more holistic perspectives, often framed under ‘healing’ and ‘health’ metaphors [58] and focusing on smallholding farming. Agroecology and similar concepts such as regenerative farming or conservation agriculture are gaining popularity and importance in food systems debates. Often in agroecology narratives, social justice discourses and food system sustainability are dominant, and biodiversity conservation is not the main consideration.

In sum, both biodiversity conservation and farming are conceived differently by different parties. Biodiversity conservation narratives are used to counteract not only farming narratives but also

other conservation narratives and vice versa. Thus, a myriad of discourses and counter-discourses are continuously elaborated to enhance or conceal conflicting causes and articulate convincing frameworks. This can lead to rhetoric such as equating environmental sustainability to social justice in the Sustainable Development Agenda [64]. This, in turn, can result in the oversimplification of problems, creating potential misunderstandings and polarization between stakeholders and promoting dissension on how to approach sustainability [65].

### Using biodiversity as a compatible boundary concept

In line with a recent study [67], Figure 1B in Box 1 suggests that the perception of what biodiversity entails varies widely between different stakeholder groups. Scientists generally refer to the formal definition of biodiversity linked to processes, goods, and values [68]. However, both NGOs and scientists often equate biodiversity with nature and wildlife. Contrarily, farmers generally have a more functional notion [69]. They often equate biodiversity with species groups that functionally contribute to agriculture, such as pollinators, natural enemies, or soil biota, but also harmful organisms such as pests and plagues. Yet other stakeholder groups perceive biodiversity related to aesthetics or sense of place [67,69]. Importantly, although biodiversity has different connotations and values for different stakeholders [70] that often have opposing narratives, all connotations are primarily positive. This may be explained by the fact that biodiversity does not yet symbolize a specific worldview, and its image remains mostly neutral in controversial issues [69]. For instance, farming stakeholders are regularly using the word ‘biodiversity’ in their online communication independently of their narrative and in connection to constructive ideas (see Box 2). This suggests that biodiversity could be used as a compatible boundary concept because different stakeholders associate with it in positive, albeit different, ways and could therefore get stakeholders together, help to share information seamlessly, and to cooperate effectively to find solutions for potentially controversial conservation problems. However, although biodiversity could be a great starting point, it also has been known to occasionally lead to conflict when different stakeholders place value on contrasting biodiversity components that require different management strategies. Hence, as the conversation evolves, these different views of biodiversity should be explored jointly to prevent tensions and conflict in the long term.

### Why scientists need to develop their own narrative

Narratives as efficient communication tools can enhance understanding and improve memory retention [71]. By using clear narratives built around their study outcomes, scientists can engage a larger proportion of a target audience than by just presenting facts and figures [24]. Furthermore, scientists should be aware that if they do not frame the outcome of their work, others will do it. In other words, when scientists fail to communicate and position the implications of their results, stakeholders are free to use these in ways that best serve their own interests. This means scientists need to become a stakeholder in the discussion and take a stand. Depending on a scientist’s preference, taking a stand can range from formulating the implications and societal relevance of scientific studies in a language that laypeople can understand to becoming an advocate for the cause.

Not all scientists are comfortable with taking a position in debates, but in the biodiversity conservation and farming arena, not taking a stand is inevitably also taking a stand – just one you have no control over. Furthermore, most scientific methods and study designs are consciously or unconsciously colored by the assumptions we make, the frameworks on which we base our questions, and the hypotheses we choose to test. Particularly for science addressing societally relevant topics, one could therefore argue that neutral science does not exist. Importantly, taking a stand does not have to compromise the integrity of scientists; it only means that we explicitly voice our view of the world. We can achieve this by always clearly distinguishing between the

evidence produced by science and what we think this means for society (i.e., the interpretations, implications, and framing) when communicating. Besides, there are transparent and robust processes to mitigate the risk of mistrust, such as by clearly acknowledging the assumptions, uncertainty, and caveats of our messages [72]. Critical thinking will be always fundamental, as well as applying intellectual standards such as accuracy, fairness, and transparency.

Finally, if the goal is maximizing societal impact to contribute to biodiversity conservation on farmland, scientists cannot work in isolation. We, as scientists, need to listen first and embrace the value of a pluralistic approach, where drawing on different ways of knowing and doing can help find creative solutions [29]. It is pivotal to connect with different stakeholders, acknowledge

**Box 2. The use of the term ‘biodiversity’ by different stakeholders in the European farming-biodiversity conservation playing field**

Out of the 4955 analyzed press releases and news items from advocacy groups, farmer organizations, agri-industry sector, intergovernmental agencies, and NGOs, a total of 1737 (35%) included the term ‘biodiversity.’ As expected, farmer organizations and especially stakeholders from agri-industry sector use the ‘biodiversity’ term less than intergovernmental agencies, NGOs, and advocacy groups (Figure I). When these stakeholders talk about biodiversity and farming, each group highlights different aspects (Figure II A–E). Intergovernmental agencies, NGOs, and advocacy groups communicate fairly similarly and mainly center on the science policy interface, focusing on aspects such as ‘European Union’ or biodiversity ‘loss.’ By contrast, the science policy interface does not feature much in the communications of farmer organizations and the agri-industry sector, although both communicate about the ‘farm to fork strategy.’ Farmers frequently focus on actions mentioning specific measures such as flower ‘strips’ and ‘lines.’ It is notable that the agri-industry sector is the only group that communicates about ‘pressure,’ ‘ambitions,’ and ‘challenges’ in relation to biodiversity and farming.

Based on this example, it is probably not a good idea to open a dialogue about biodiversity-friendly farming with a farmer choosing technical topics far from their direct interests, such as ecosystem services or climate regulations, which would be better suited for creating understanding and trust with NGOs and intergovernmental agencies. When opening a conversation process with a farmer, scientists can best start focusing on specific aspects that farmers experience on a daily basis, such as yield, soil quality, or how to safeguard the farm for his or her children to foster comprehension of ideas and perspectives.

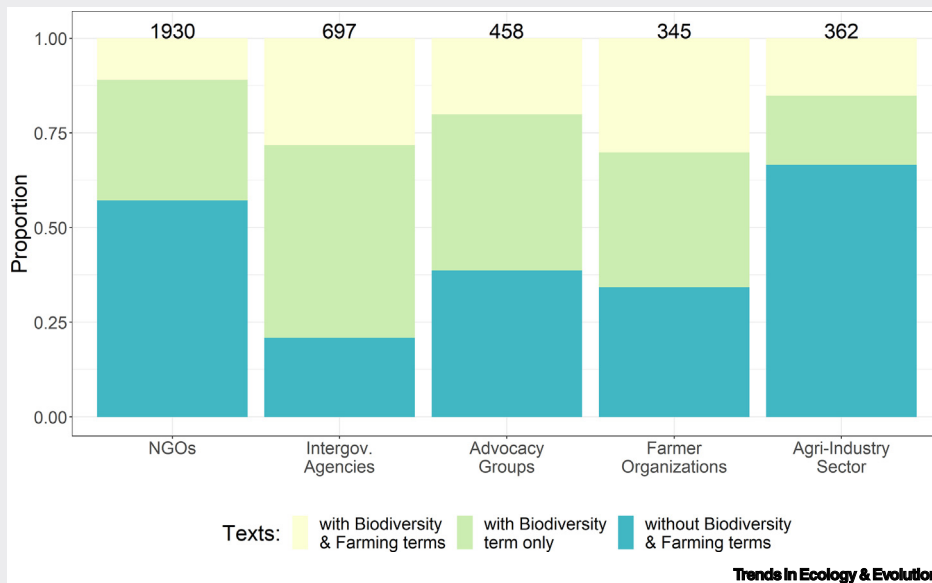
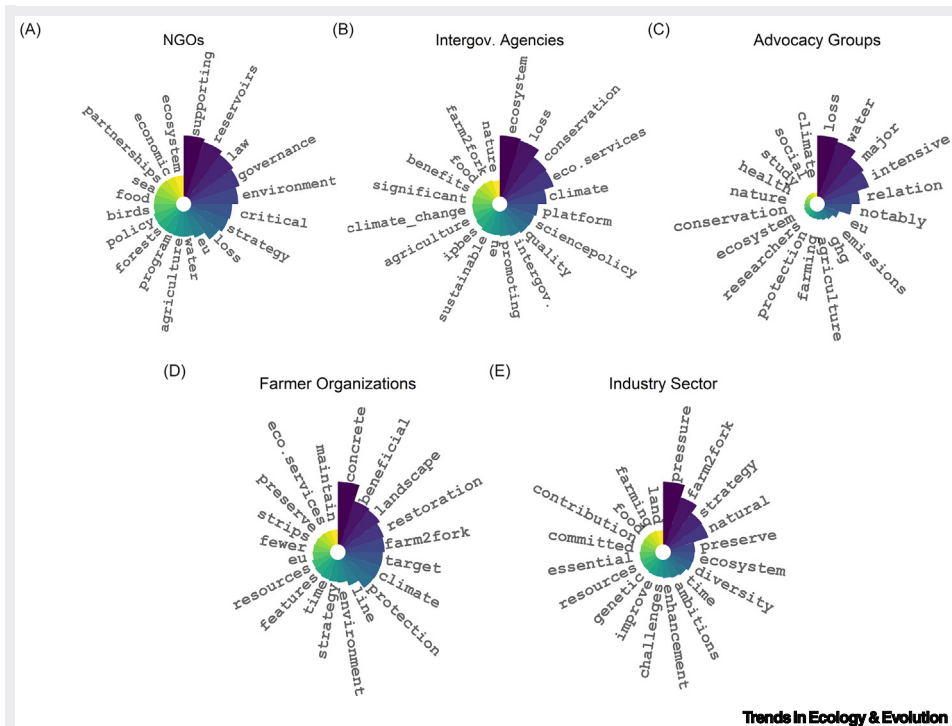


Figure I. ‘Biodiversity’ term usage by stakeholder type. Proportion of texts including the terms ‘biodiversity’ and ‘farming’ (yellow), only ‘biodiversity’ (green), and without including any of these terms by stakeholder type in the studied corpus.



**Figure II. Top 20 biodiversity correlated topics used by stakeholders.** (A–E) Data were derived from 214 digital press releases and news texts containing both terms: ‘farming’ at least one time and ‘biodiversity’ at least five times. The analysis context was narrowed to the sentence frame. Sample size varies according to stakeholder type: The number of times the term ‘biodiversity’ used was as follows: farmer organizations, 122 times in 12 texts; industry sector, 165 times in 13 texts; intergovernmental agencies, 846 times in 68 texts; advocacy groups, 846 times in 41 texts; and NGOs, 875 times in 80 texts. The size of the bars is proportional to their relative probability of occurrence together with the term ‘biodiversity.’

their needs, and translate results into strategic narratives. The narrative of conservation scientists should balance between following scientific evidence, finding an equilibrium between persuasion and accuracy, and being inclusive, that is, recognizing and inviting potential conflicting positions. Being inclusive may help build trust relationships that can ultimately result in a larger societal impact [73]. Nevertheless, scientists should be aware when their involvement in multistakeholder initiatives merely represents greenwashing by other stakeholders [74].

### Building an impactful narrative based on scientific evidence

Many narratives for biodiversity-friendly farming that are popular among policymakers and scientists focus on win-win scenarios [10,75]. These narratives generally do not acknowledge the many trade-offs that occur when aiming to conserve biodiversity on farmland [76]. Recent evidence indicates that win-win scenarios are rare and that generally biodiversity conservation and crop yield or farm profit trade off against each other [35,77]. To a farmer, this may be obvious; for instance, land taken out of production to grow wildflowers cannot be used to produce crops, and, although under specific conditions enhanced pollination or pest control might compensate for yield loss [78], this is generally not the case [79]. Fairly presenting the advantages and disadvantages of biodiversity-friendly farming might be difficult to communicate in the short term but might be pivotal in the long term. Additionally, the importance of emotions and values, rather than merely facts, is often underestimated by scientists [24].



Studies have shown that, when taking decisions, practitioners often rely more on intuition or opinion than on scientific evidence [80]. Scientists can improve the impact of their narratives by acknowledging and using these insights, such as by letting farmers do part of the communication.

Once the key message for a narrative has been chosen, scientists should carefully consider how to deliver their message. Each narrative should be tailored to the evidence scientists want to communicate, the key societal implications that the scientist thinks it entails, and the targeted audience. Although there are no cookbooks on how to do this, effective narratives need to address three key questions, presented in a specific order and in a way that appeals to their audience [81]: ‘why,’ ‘what,’ and ‘how’ (Box 3). Scientists should take the time to come up with clear answers to these three questions and rehearse how to articulate them before engaging with different stakeholders.

### Concluding remarks

The challenge of how to integrate biodiversity management into farming practices needs effective scientific communication to ensure uptake by farmers and other stakeholders (see [Outstanding questions](#)). Many narratives regarding biodiversity-friendly farming are already being used in the public arena. Researchers should acknowledge these and strategically position their own narratives to maximize impact, becoming a legitimate stakeholder in the conversation. The use of biodiversity as a boundary concept that can bring together contrasting stakeholders, and the use of narratives that clearly explain the why, the what, and the how, can help bridge the gap between science and practice.

### Outstanding questions

Who is communicating with farmers about biodiversity, why, and what narratives are being used in different parts of the world?

Which messages are reinforced and which are hidden by the narratives of the key stakeholders in the farmland biodiversity conservation playing field?

How does the variety of practitioners involved in farming activities – farmers, farmworkers, managers, etc. – respond to dominant narratives in the different countries and cultures?

Which narratives are the most likely to lead to action in favor of biodiversity-friendly farming?

What are the most effective tools and channels to communicate about biodiversity-friendly farming, and how does this differ between key stakeholders?

#### Box 3. Developing an impactful scientific narrative: an example

Effective narratives require a message that is concise but comprehensive [82]. The exact content and terminology might differ for different audiences or in different contexts (e.g., for different taxa), but an example of an effective strategy to get across your message is to follow the formula why-what-how.

- (i) **Start with ‘why.’** A clear ‘why’ helps to define your core beliefs and transmit a sense of mission [81]. This enhances trust because your audience understands why you are advocating for a given idea and what is your agenda. As shown in the main text, the term ‘biodiversity’ functions as a boundary concept, and hence it can be used to connect with a wide range of people. Because the reasons why we should conserve biodiversity on farmland are complex, it is often helpful to use metaphors: For example, concepts such as complementarity can be expressed by comparing biodiversity with a tractor, which requires all the gears (species) to work properly; redundancy can be explained as a football team, or any other team sport, where only a limited number of players are on the playing field at any point in time, but we need a large and diverse group of teammates (species) on the substitutes’ bench as a backup; and interconnectedness or interdependence can be compared to a tapestry, where the interlacing threads can be compared to the links between species, environment, and humans [83]. It may be necessary to employ different analogies in order to convince different stakeholders in a given narrative.
- (ii) **Continue with ‘what.’** The ‘what’ presents your key take-home message. Ideally, it should be one short and direct sentence that presents in clear and nontechnical terms your take-home message. Best messages are balanced and honest and not empty slogans. Rehearsing a couple of key messages targeting different audiences helps in being precise, consistent, and earnest.
- (iii) **Finalize with ‘how.’** Explain how to achieve the ‘what.’ This is particularly important for farmers but is not something scientists excel at. The ‘how’ should be concrete and can best be transmitted by success stories that are real and close to the audience’s hearts [84]. Success stories can range from conservation [85] to farmers’ income [78] and farm health stories.<sup>†</sup>

Note that we do not suggest which should be your why, what, and how. The answer to this should emerge from listening to the relevant stakeholders, integrating the available scientific evidence, and critically evaluating all this information in light of the prevailing narratives.

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### Declaration of interests

No interests are declared.

### Resources

<https://www.olivaresvivos.com/>

### Supplemental information

Supplemental information associated with this article can be found online at <https://doi.org/10.1016/j.tree.2024.01.007>.

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