

# Bayer's response on ChemSec's assessment 2024

In August 2024, Bayer responded to ChemSec's ChemScore draft assessment as follows:

## General remarks sent to ChemSec

The Bayer team appreciates your interest in our company. Before digging into the details of your questionnaire, we would like to point out a few overarching remarks and suggestions concerning the underlying [methodology](#) of ChemSec's ChemScore considering our business activities:

Bayer is active in highly regulated markets in crop protection and in pharmaceuticals. Numerous studies need to be performed as basis for comprehensive scientific dossiers before a pesticide or a pharmaceutical substance can be approved (e.g., on EU-level) or a product can be registered on country-level and marketed – **this is different from other chemicals in scope of ChemSec and should be accurately reflected in the respective assessments.**

Each R&D project in crop protection must undergo comprehensive assessments of potential impacts on the health of humans and animals as well as impacts on the environment as defined by respective regulatory frameworks. To ensure the safe use of our crop protection products based on adequate research, we market only those crop protection products whose active ingredients are registered in at least one OECD country or, in the case of new active ingredients, for which an OECD data package has been compiled. The internationally agreed OECD methodology considers both the intrinsic hazard properties of a substance and its exposure into the environment. **Contradictory, ChemScore's methodology seems to exclusively focus on the hazard profile of the substances.**

The EU has the most complex and ambitious chemicals legislation in the world: REACH. Together with the CLP (Classification, Labelling and Packaging) for hazard assessment and communication, it constitutes a solid umbrella framework to regulate substances and mixtures. As a result of REACH, Europe has the most comprehensive knowledge database on chemical hazards and risks globally. This framework is complemented by a complex array of other use and product-specific policies.

We would also like to highlight that for the purposes of REACH and chemicals regulations in general, persistence thresholds have been chosen not on the basis of persistence alone, but on a combination of persistence and other substance properties. This means that a substance deemed to be persistent is only considered to be hazardous if it is at the same time persistent, bioaccumulative and toxic (PBT substance), or at the same time persistent, mobile and toxic (PMT substance). Therefore, fulfilling the persistence criterion on its own does not constitute a hazard to human health or environment. This is not reflected in ChemScore's methodology.

We clearly have to distinguish between regulatory assessments following international standards and individual opinion. **ChemScore's assessment of the product portfolio mixes regulatory assessments and individual assessments.**

For FY 2023 Bayer's revenue generated in the US and EU countries was approx. 58%.

## Assessment criteria ChemSec 1: Production of Hazardous Chemicals

### Substances used exclusively as intermediates:

ChemSec's current SIN List includes 8 substances on Bayer, that are used exclusively, without any exemption, as intermediates in production in all our facilities, including all subsidiaries. These substances are converted through further chemical reactions and handling takes place in enclosed industrial facilities, which means that no contact with any substance of concern occurs.

This applies to the following substances:

CAS #	Substance name
32539-16-5	1,3,4-Thiadiazole, 2-(methylthio)-5-(trifluoromethyl)-
1121649-70-4	1,3-Cyclohexanedione, 2-[2-chloro-4-(methylsulfonyl)-3-[(2,2,2-trifluoroethoxy)methyl]benzoyl]-, ion(1-), potassium (1:1)
142994-05-6	Benzoic acid, 2-(methylthio)-4-(trifluoromethyl)-
120100-77-8	Benzoic acid, 2-chloro-4-(methylsulfonyl)-3-[(2,2,2-trifluoroethoxy)methyl]-
143701-81-9	Benzoyl chloride, 2-(methylsulfonyl)-4-(trifluoromethyl)-
1118729-23-9	Benzoyl chloride, 2-chloro-4-(methylsulfonyl)-3-[(2,2,2-trifluoroethoxy)methyl]-
936914-80-6	Methanone, (5-hydroxy-1,3-dimethyl-1H-pyrazol-4-yl)[2-(methylsulfonyl)-4-(trifluoromethyl)phenyl]-, potassium salt (1:1)
95-53-4	O-toluidine

Assessment criteria ChemSec 2.3: *The company has a strict hazard-based and public commitment to not develop or market new chemicals or products with SVHC properties*

Bayer's response:

Please have a look at our Sustainability Report 2023, page 65f (verified with "limited assurance"): development of new pesticides requires assessments "including in-vitro and in-vivo studies (mammals) on acute, subchronic, chronic toxicity; mutagenicity, carcinogenicity, teratogenicity, reproduction; endocrine disruption, residues (e.g. plants, animals); dietary and nondietary risk assessments"

page 65/66: "As part of the testing process, chemical and biological crop protection products are examined early in the development phase with regard to their mode of action, their (eco)toxicological properties and the extent of potential residues in plants and the environment to ensure that we only continue to develop those products with the best safety profile."

"Development and in-licensing projects for crop protection products classified as World Health Organization (WHO) class 1a or 1b, or that do not meet the OECD (Organisation for Economic Cooperation and Development) Guidance for Pesticide Registration, will not be pursued. In all other cases further activities and refined risk assessments are performed. This enables selection and implementation of the right projects in a sustainable manner and makes the best use of available resources in research and development."

"Each R&D project must undergo a thorough safety assessment as defined by the respective regulatory environments following a risk-based approach that often exceeds these requirements – particularly in low- and middle-income countries (LMICs). This risk-based approach takes account of local agronomic use conditions in LMICs, especially common local application techniques that are not widespread in Europe or the United States (e.g. manual application of crop protection products in dense crop scenarios). For these scenarios, we have developed globally relevant exposure models that consider these actual use conditions. They are consistently applied before triggering development work for new products. R&D projects that we do not consider safe under the current use conditions will not be pursued further."

Sources: Sustainability Report 2023, pages 65/66 - all information published with "limited assurance"

Assessment criteria ChemSec 2.4. *Active marketing of self-proclaimed greener, eco-friendlier and more sustainable products*

Bayer's response:

Our Iberogast® are nature-based products and therefore marketed this way, see <https://www.iberogast.de/ueber-iberogast>

Bayer aims to transform agriculture by driving forward a more sustainable food system guided by our vision of regenerative agriculture. For us, regenerative agriculture is an outcome-based production model based on two key building blocks: productivity, which focuses on helping farms to produce more with less; and regeneration, which focuses on delivering a positive impact on nature. Regenerative agriculture will play an increasingly important role in supporting food security and sustainable food production, especially as our climate continues to change. This is because, unlike conventional farming, regenerative practices offer a way to improve farm productivity and incomes while delivering benefits for nature. We are advancing the future of regenerative farming through:

// Crops/smart cropping systems (e.g. short-stature corn, hybrid wheat, direct seeded rice, new cover crops)

// Seeds and traits technologies (e.g. precision breeding, genome editing, biotechnology)

// Sustainable crop protection (e.g. new chemical profiles, biologicals)

// Innovations in carbon farming, data, and digital solutions

// Nitrogen fixation innovations

Bayer adopted a methodology for crop protection environmental impact reduction (CP EIR) and made a commitment to reducing the environmental impact of our crop protection products. Specifically, we aim to reduce the treated-area-weighted environmental impact per hectare of Bayer's global crop protection portfolio by 30% by 2030 against a 2014–2018 average baseline. The methodology we adopted relies on two leading, externally developed scientific consensus models to enable a quantifiable environmental impact assessment of crop protection. Please see Bayer's Sustainability Report 2023, page 52 (verified with "limited assurance"), dedicated webpage <https://www.bayer.com/en/agriculture/reducing-agricultures-impact-environment> | Bayer Global, the Bayer Crop Science Sustainability Progress Report: <https://www.bayer.com/en/sustainability-progress-report> and the methodological report: [https://www.bayer.com/sites/default/files/Bayer\\_CP%20EIR%20Report%20.pdf](https://www.bayer.com/sites/default/files/Bayer_CP%20EIR%20Report%20.pdf).

Also, we focus on optimal and precise application and better environmental profiles in our crop protection products. Our scientists are unlocking the future of sustainable protection using an approach we call CropKey. Using data-driven technologies, we narrow down those molecules with promise of efficacy and eliminate those that do not reach our high safety and sustainability standards far faster than in the past. Please see: <https://www.bayer.com/en/agriculture/cropkey>.

Our digital farming platform Climate FieldView™ enables farmers to use data to optimize their agricultural inputs (costs) used on the field and to improve their output (yields). This takes place through the sensor-based collection and storage of large volumes of machine-generated agronomic and machinery-related data directly on the farmers' accounts. The application of this data not only enables farm management to be economically sustainable by providing higher return on investment, but also creates substantial advantages for the environment. Please see further information in our Sustainability Report 2023, page 73 (verified with "limited assurance") and at <https://www.bayer.com/en/agriculture/digital-farming>.

Moreover, Biologicals are an important part of [our commitment](#) to encourage diversity in modern agricultural practices and enable regenerative agricultural practices by providing a broad range of solutions to support farmers. Bayer partners with leading innovators around the world to bring new biologicals from the open innovation ecosystem to growers of all kinds. Agricultural biologicals are innovative nature-based technologies that can serve as an important part of many integrated crop management systems – often in the form of biocontrols and biostimulants. When complemented by leading seeds & traits, digital tools, and chemical crop protection, biologicals can help growers achieve the best results in their fields.

While many biologicals come from microbial solutions, exciting improvements in existing tools are expanding what kinds of biologicals are available as options. Plant-derived botanical extracts and pheromone biomimicry are also showing the way forward for safe, effective, and tailored solutions that provide growers with new alternatives. Please see more information here: <https://www.bayer.com/en/agriculture/agriculture-biologicals>.

As part of our Seeds Business, we are researching in more sustainable products like our "Preceon™ Smart Corn System", see Sustainability Report 2023, page 47 (verified with "limited assurance"):

"This crop system will include digital support tools and agronomic recommendations to improve the way corn is grown to make it more sustainable. As part of our Seeds Business, we are researching in more sustainable products like our "Preceon™ Smart Corn System", see Sustainability Report 2023, page 47 (verified with "limited assurance"): "The crop system will include digital support tools and agronomic recommendations to improve the way corn is grown to make it more sustainable. Through breeding, we have succeeded in developing seed hybrids that enable the growth of shorter corn plants that have the potential to not bend or break (agronomists call this root and stalk lodging) as easily as corn plants of regular height in the presence of strong winds or heavy rain. Losses in the United States due to bent plants amount to between 5% and 25% a year depending on the severity of weather events. Due to its short stature, the corn hybrids of the Preceon™ Smart Corn System also allow farmers in-season access, which enables optimized application of crop protection products and nutrients such as nitrogen."

#### Assessment criteria ChemSec. 2.6. *Offering of circular end-products or processes, enabling circularity*

Bayer's response:

Pharmaceutical products and pesticides are highly regulated products and typically not allowed to be used more than one time.

Many of the bio-based materials (such as bioplastics) are made of corn starch, zein or soy protein/soy oil. With our seeds business in corn and soy, we aim to enable the large-scale production needed already today to provide enough quantity of the basic material for biobased products.

In our Pharmaceutical Business, we close the circle for our iodinated products, see Sustainability Report 2023, page 89 (verified with "limited assurance"): "As part of our re:contrast program, we take back residues of our iodinated X-ray contrast agent iopromide and our gadolinium-containing contrast agent gadobutrol from our customers. This makes it possible to avoid unnecessary environmental discharges and properly reuse the iodine or gadolinium in an industrial cycle. Once contrast agent containers have been opened, their contents need to be quickly used. Collection enables iodine and gadolinium contained in residues of unused contrast agents from doctor's surgeries, hospitals or radiology centers to be reused. The residues are collected in special containers that can be obtained from Bayer for free and that an external service provider picks up on our behalf. This makes our system customer-friendly and participation easier for medical personnel. Iodine recovery is already a common practice in Bayer's contrast agent production. Tons of iodine have already been recovered using our patented process and fed back into the value chain. The recovered iodine can be used for many different purposes, but not for the production of contrast agents themselves as the legal quality requirements for medicinal products do not permit this."

To support [circular thinking](#), for the disposal of containers and old inventories of our pesticide products, we have a discontinuation policy, see our Sustainability Report 2023, page 77 (verified with "limited assurance"):

Processes are in place at Bayer to ensure the safe sell-off of products, including the disposal of obsolete inventories or waste. The crop protection industry has set up voluntary initiatives in various countries for the proper disposal of obsolete stocks. As part of its activities in the international CropLife association, Crop Science is also working with the Food and Agriculture Organization (FAO) of the United Nations and the World Bank to support the proper collection and disposal of obsolete crop protection products in Africa. Empty crop protection product containers must be safely disposed of to ensure that any remaining product residues are not released into the environment and that empty containers are not improperly reused. As the proper disposal of crop protection product containers is handled differently in many countries, the crop protection industry collaborates with authorities, distributors, and farmers to establish or maintain suitable disposal systems. Bayer supports programs worldwide to ensure the safe recycling and disposal of empty packaging and containers. Users can learn about how to safely dispose of our products through information on their labels. We support the safe disposal of empty crop protection product containers in many countries together with our CropLife International industry association. As a result, some 1.3 million metric tons of plastic have been collected since 2005. This partnership has also facilitated the development of environmentally friendly

packaging design programs, the implementation of training courses on the proper handling of crop protection product containers for distributors and farmers, and the testing of plastic recycling options. Particularly successful disposal programs have been established in Brazil, Canada, France, Germany and Australia. In Brazil, more than 700,000 metric tons of empty crop protection product containers have been disposed of since 2002 through the inpEV (National Institute for Processing Empty Packages) program.

In Germany, the crop protection industry partnered with agricultural wholesalers to develop the voluntary PAMIRA system for disposing of agrochemical packaging materials. Crop protection product manufacturers cover the costs for collection, logistics and utilization of packaging, while wholesalers provide the collection points. In 2022, around 3,000 metric tons of crop protection product and liquid fertilizer packaging in Germany were returned free of charge to the almost 400 collection points and disposed of in an environmentally friendly manner through the PAMIRA system."

To support circular thinking in agriculture and to reduce the use of nitrogen fertilizers, we partnered with Ginko BioWorks: "We also invest in new technologies and conduct research into questions such as how plants could use nitrogen from the air for their growth with the help of soil microorganisms. This would enable the use of nitrogen fertilizer to be greatly reduced in the future. Currently, this substance is essential for plant growth, yet its production and use result in significant greenhouse gas emissions." (Sustainability Report 2023, page 17 (verified with "limited assurance"). For more information see <https://www.ginkgobioworks.com/case-studies/bayer/>

In our production processes, we use several technologies supporting the circular use of the production inputs, see Sustainability Report 2023, page 143/144 (verified with "limited assurance"):

"Whenever possible and within the framework of legal regulations, we make use of the opportunities in our divisions to recycle solvents, catalysts and intermediates and return them to the production process following treatment. Recycling plays an especially important role at Crop Science and is therefore a key criterion at the process development stage of active ingredient production.

In all divisions, production- and material-based recycling is aligned to the individual requirements of the production processes at the sites. Here are some examples:

// Material-based recycling of solvents from production is implemented at various active ingredient production sites.

// Volumes of incineration waste are being reduced at a site in the United States using distillation. At the same time, occupational safety has improved because less manual intervention is required in the process.

// At a site in Germany, a patented recycling process is employed to recover iodine and return it to the industrial supply chain. The iodine is recovered from leftover contrast agent collected at medical facilities through the re:contrast returns program or from our own production waste. Unused products are currently recovered through re:contrast from hospitals in seven countries, and it is planned to introduce this program in three additional countries. We also plan to recycle contrast agent waste from an additional production site in Spain. In addition to iodine recycling, the re:contrast returns program also collects leftovers of gadolinium-based contrast agents and recycles them through an external partner (please see also Chapter 3.8 Pharmaceuticals and Consumer Health – Trace substances of active pharmaceutical ingredients in the environment).

// Mirroring the re:contrast program, old injectors are taken back, refurbished or repaired and reused as spare parts through the re:device program.

// Plant residues (such as corncobs or rice husks) from seed production are recycled into animal feed and various corn products or are used as natural fertilizers and fuels at our seed production sites.

// Employees and contractors at three sites in Argentina are being given extensive training that enables them to avoid the disposal of waste products at landfills. The waste streams are either reused, recycled, composted or incinerated.

// At a production site in Spain, the plan is to use gelatin waste for biogas production, which will enable a reduction in the volume of incinerated waste and associated CO<sub>2</sub> emissions."

Assessment criteria ChemSec. 2.7. *Using biobased/renewable resources (as input to their production/processes)*

Bayer's response:

For the production of our products, we use plant oil derivatives. See website [Strategic Sustainability Focus Areas | Bayer Global](#)

Alternative raw materials: Seed is a renewable raw material that is in turn used by our customers in agriculture to grow plants. Renewable raw materials for the manufacture of our products account for a minor proportion of our chemical and pharmaceutical procurement volume. These materials are primarily used when it makes technical, economic and ecological sense to do so. For more information, please see our website. We support value chains with the focus on sustainable production, transparency, traceability and certification. Bayer's commitment to net-zero deforestation (please also see Chapter 3.7 Biodiversity) includes the ambition to source sustainable palm (kernel) oil derivatives and soy derivatives. Our activities are aligned with the elements of the Accountability Framework and cover the products that we directly purchase. As part of our initial assessment, we have conducted a risk assessment and due diligence. In our current report to CDP Forest, we have included further information.

Palm Oil: " Compared to our overall procurement spend, Bayer only sources a small number of palm (kernel) oil derivatives for our businesses (less than 1% of our procurement spend). A detailed and comprehensive traceability of the origin of these already processed products is generally not possible. Bayer has participated in the Roundtable for Sustainable Palm Oil (RSPO) since 2004. We started to transition our supply chain to RSPO mass balance certified sustainable palm oil in 2021. Though there are various challenges, including the availability of products, we aim for 100% of palm oil derivatives purchased by 2027 to be covered with RSPO mass balance.

Soy: " We support the production of sustainable soy via the purchase of credits certified by the Round Table on Responsible Soy (RTRS). Bayer has been a member in the RTRS board since 2017, and 100% of our purchases of soy derivatives are covered by RTRS credits. Since 2022, we have also significantly increased our efforts to gain more insights into the value chain, with the result that we can trace approximately 80% of our purchases to a jurisdictional area.

For more information and for our purchasing of timber, please see our "CDP Forests Report 2023" - rated "B"

<https://www.bayer.com/sites/default/files/bayer-ag-cdp-forest-2023.pdf>

#### Assessment criteria ChemSec. 2.8 Using or producing recycled feedstock

##### Bayer's response:

In our Pharmaceutical Business, we aim to close the circle for our iodinated products, see Sustainability Report 2023, page 89 (verified with "limited assurance"): "As part of our re:contrast program, we take back residues of our iodinated X-ray contrast agent iopromide and our gadolinium-containing contrast agent gadobutrol from our customers. This makes it possible to avoid unnecessary environmental discharges and properly reuse the iodine or gadolinium in an industrial cycle. Once contrast agent containers have been opened, their contents need to be quickly used. Collection enables iodine and gadolinium contained in residues of unused contrast agents from doctor's surgeries, hospitals or radiology centers to be reused. The residues are collected in special containers that can be obtained from Bayer for free and that an external service provider picks up on our behalf. This makes our system customer-friendly and participation easier for medical personnel. Iodine recovery is already a common practice in Bayer's contrast agent production. Tons of iodine have already been recovered using our patented process and fed back into the value chain. The recovered iodine can be used for many different purposes, but not for the production of contrast agents themselves as the legal quality requirements for medicinal products do not permit this."

In our production processes, we aim to use several technologies supporting the circular use of the production inputs, see Sustainability Report 2023, page 143/144 (verified with "limited assurance"):

"Whenever possible and within the framework of legal regulations, we make use of the opportunities in our divisions to recycle solvents, catalysts and intermediates and return them to the production process following treatment. Recycling plays an especially important role at Crop Science and is therefore a key criterion at the process development stage of active ingredient production.

In all divisions, production- and material-based recycling is aligned to the individual requirements of the production processes at the sites. Here are some examples:

// Material-based recycling of solvents from production is implemented at various active ingredient production sites.

// Volumes of incineration waste are being reduced at a site in the United States using distillation. At the same time, occupational safety has improved because less manual intervention is required in the process.

// At a site in Germany, a patented recycling process is employed to recover iodine and return it to the industrial supply chain. The iodine is recovered from leftover contrast agent collected at medical facilities through the re:contrast returns program or from our own production waste. Unused products are currently recovered through re:contrast from hospitals in seven countries, and it is planned to introduce this program in three additional countries. We also plan to recycle contrast agent waste from an additional production site in Spain. In addition to iodine recycling, the re:contrast returns program also collects leftovers of gadolinium-based contrast agents and recycles them through an external partner (please see also Chapter 3.8 Pharmaceuticals and Consumer Health – Trace substances of active pharmaceutical ingredients in the environment).

// Mirroring the re:contrast program, old injectors are taken back, refurbished or repaired and reused as spare parts through the re:device program.

// Plant residues (such as corn cobs or rice husks) from seed production are recycled into animal feed and various corn products or are used as natural fertilizers and fuels at our seed production sites.

// Employees and contractors at three sites in Argentina are being given extensive training that enables them to avoid the disposal of waste products at landfills. The waste streams are either reused, recycled, composted or incinerated.

// At a production site in Spain, the plan is to use gelatin waste for biogas production, which will enable a reduction in the volume of incinerated waste and associated CO<sub>2</sub> emissions."

Assessment criteria ChemSec. 3.2. *Company has a public strategy with (timed) phase-out plans for existing hazardous chemicals beyond regulatory compliance*

Bayer's response:

Bayer already phased-out many pesticide products in the last decades - in line with international guidelines and local regulations. In countries without strict regulation, we go beyond the local level, as we apply the same standard like for our operations in OECD countries. This led to the phase-out of certain Bayer in these countries. But as many pesticides are out of patents, other chemical companies still sell these pesticides as generic products. See our Sustainability Report 2023, page 65ff (verified with "limited assurance").

To effectively measure and reduce the environmental impact of pesticides used globally, we use our commitment of "Crop Protection Environmental Impact reduction:" Sustainability Report 2023, pages 52-54 (verified with "limited assurance"):

"To this end, Bayer adopted a methodology for crop protection environmental impact reduction (CP EIR) and made a commitment to reduce the environmental impact of our crop protection products. Specifically, we will reduce Bayer's global treated area weighted crop protection environmental impact per hectare by 30% by 2030 against a 2014 – 2018 average baseline. (...) Based on the data collected between 2018 to 2022, Bayer has reduced the treated-area-weighted environmental impact per hectare of our global crop protection portfolio by 12% against the 2014 – 2018 baseline. The reduction was mainly the result of changes in our crop protection product portfolio in recent years. For the reporting period 2017 to 2021, we must restate our progress as 11% as opposed to the previously reported 14%, due to model enhancements and newly identified data corrections."

Read more about the methodology, which was developed by the Technical University of Denmark (PestLCI) and the UNEP-SETAC (USEtox®) in our Sustainability Report 2023, pages 52-54, verified with "limited assurance")

Also, in many countries counterfeit pesticides and illegal pesticides are in the markets, especially when there is a low level of regulation. This is an important aspect to effectively limit the use of hazardous pesticides globally. Read about our efforts in our Sustainability Report 2023, pages 59/61 (verified with "limited assurance").

Sustainability Report 2023, page 69 (verified with "limited assurance"):

"Self-commitment

Our crop protection products are classified according to their WHO acute toxicity class and this classification is maintained in our internal database. Internal processes ensure that no new product with a WHO class 1a or 1b category can be marketed. In addition, since 2012, we have no longer sold WHO Class 1a or 1b agricultural crop protection products despite continued formal authorization to do so. We also withdrew registrations on WHO Class 1a or 1b agricultural crop protection products.

Not all our crop protection products are registered in Europe. There are various reasons for this, e.g. different customer needs and agricultural practices outside Europe. These crop protection products are registered in accordance with national regulations outside Europe. Bayer complies with international regulations, e.g. the UN Rotterdam Convention concerning the export of such products that could be produced in Europe but are not registered in Europe, being registered instead in the importing country. In this context, Bayer committed itself to only selling crop protection products according to our OECD commitment. We regularly review the products we offer in emerging markets and developing countries with respect to the applicable specifications for ensuring the safety of our products and reducing the risks associated with their use. We voluntarily withdraw such products from the market if identified risks cannot be limited sufficiently. For more information on the safety of crop protection products, please see our website.

To ensure the safe use of our crop protection products based on adequate research, we made an important voluntary commitment in 2016 – we will market only those crop protection products whose active ingredients are registered in at least one OECD country or, in the case of new active ingredients, for which an OECD data package has been compiled. OECD data packages require the preparation of complete dossiers for crop protection products and their active ingredients in support of regulatory decisions in OECD countries. They include the findings of all test and study reports and other relevant information submitted by the company and other interested parties. The data needs to be made available to facilitate checking by regulatory authorities as a basis for decision-making with respect to the approval of individual active ingredients, the registration of crop protection products, the establishment of a maximum residue limit, or the determination of an import tolerance, as appropriate. The guidance contained in the OECD package can be used by regulatory authorities, where the evaluation of extensive data submissions is necessary."

Assessment criteria ChemSec. 3.7. Internal circular economy policy in place

Bayer's response:

Our seeds business can be one of the key enablers for biobased products enabling circular economy.

But the principles of circular economy are not applicable to pharmaceutical and pesticide products.

We therefore ask ChemSec not to include this question in the assessment on Bayer.

To support circular thinking, for the disposal of containers and old inventories of our pesticide products, we have a discontinuation policy, see Sustainability Report 2023, page 77 (verified with "limited assurance"):

"Processes are in place at Bayer to ensure the safe sell-off of products, including the disposal of obsolete inventories or waste. The crop protection industry has set up voluntary initiatives in various countries for the proper disposal of obsolete stocks. As part of its activities in the international CropLife association, Crop Science is also working with the Food and Agriculture Organization (FAO) of the United Nations and the World Bank to support the proper collection and disposal of obsolete crop protection products in Africa. Empty crop protection product containers must be safely disposed of to ensure that any remaining product residues are not released into the environment and that empty containers are not improperly reused. As the proper disposal of crop protection product containers is handled differently in many countries, the crop protection industry collaborates with authorities, distributors, and farmers to establish or maintain suitable disposal systems. Bayer supports programs worldwide to ensure the safe recycling and disposal of empty packaging and containers. Users can learn about how to safely dispose of our products through information on their labels. We support the safe disposal of empty crop protection product containers in many countries together with our CropLife International industry association. As a result, some 1.3 million metric tons of plastic have been collected since 2005. This partnership has also facilitated the development of environmentally friendly packaging design programs, the implementation of training courses on the proper handling of crop protection product containers for distributors and farmers, and the testing of plastic recycling options. Particularly successful disposal programs have been established in Brazil, Canada, France, Germany and Australia. In Brazil, more than 700,000 metric tons of empty crop protection product containers have been disposed of since 2002 through the inpEV (National Institute for Processing Empty Packages) program.

In Germany, the crop protection industry partnered with agricultural wholesalers to develop the voluntary PAMIRA system for disposing of agrochemical packaging materials. Crop protection product manufacturers cover the costs for collection, logistics and utilization of packaging, while wholesalers provide the collection points. In 2022, around 3,000 metric tons of crop protection product and liquid fertilizer packaging in Germany were returned free of charge to the almost 400 collection points and disposed of in an environmentally friendly manner through the PAMIRA system."

To support circular thinking in agriculture and to reduce the use of nitrogen fertilizers, we partnered with Ginko BioWorks: "We also invest in new technologies and conduct research into questions such as how plants could use nitrogen from the air for their growth with the help of soil microorganisms. This would enable the use of nitrogen fertilizer to be greatly reduced in the future. Currently, this substance is essential for plant growth, yet its production and use result in significant greenhouse gas emissions." (Sustainability Report 2023, page 17 (verified with "limited assurance"). For more information see <https://www.ginkgobioworks.com/case-studies/bayer/>

Circular thinking for unused pharmaceutical products is restricted by legal requirements. In reality, taking back unused pharmaceutical products by pharmacies end up in waste incineration.

Assessment criteria ChemSec. 3.8. The company has key performance indicators (KPIs) covering circular economy targets

Bayer's response:

Our seeds business can be one of the key enablers for biobased products enabling circular economy.

But the principles of circular economy are not applicable to pharmaceutical and pesticide products.

We therefore ask ChemSec not to include this question in the assessment on Bayer.

Nevertheless, we have in place a company target for our Consumer Health Division, please see Sustainability Report 2023, page 7 (verified with "limited assurance"), to "Transition all Consumer Health products to 100% recyclable or reusable packaging".