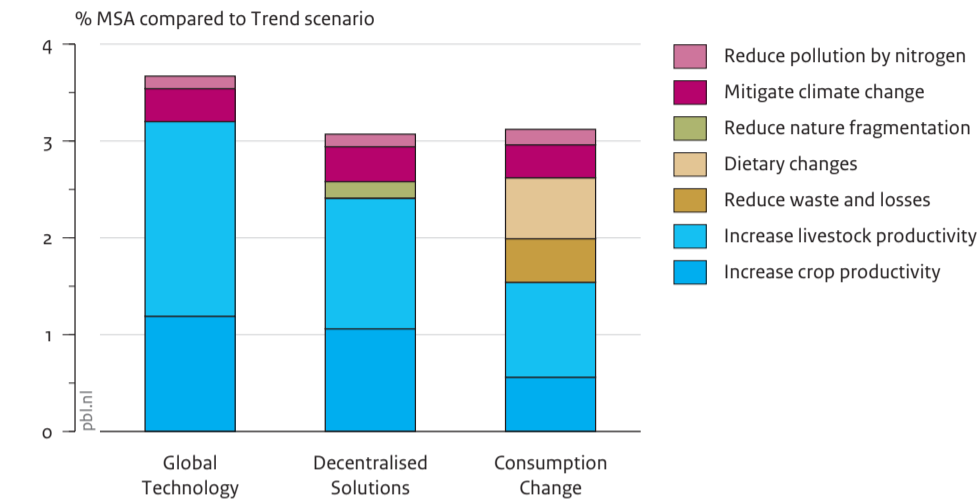


# Levers for mainstreaming biodiversity conservation into the food sector

## Pathways for reducing biodiversity loss by the food production sector in 2050



Source: PBL

If current trends continue, pressures on global biodiversity will increase in the coming decade. Crop and livestock production are by far the largest contributors to terrestrial biodiversity loss. Opportunities to halt biodiversity loss arise by mainstreaming sustainable use and conservation of biodiversity into the food sector.

We explored three pathways of halting biodiversity loss while simultaneously eradicating hunger and poverty and reaching environmental goals like limiting climate change to 2°C.

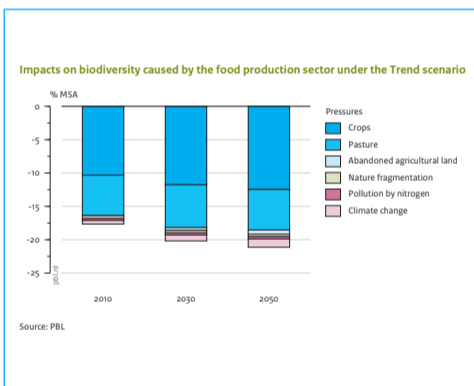
- Increase of productivity by technological changes (Global Technology)
- A mixture of productivity increase and more nature based solutions (Decentralised Solutions)
- Dietary changes and reducing food losses (Consumption Change)

### Productivity increase is most effective option

All three pathways succeed in restoring biodiversity to the 2010 level in 2050.

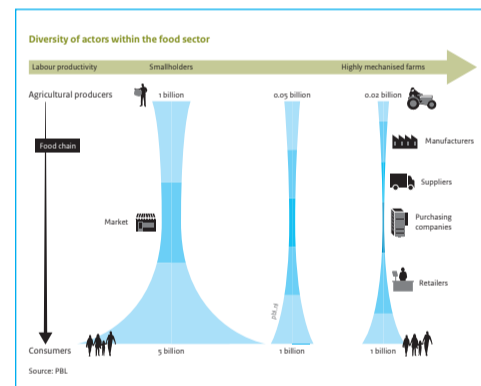
- The pathway Global Technology yielded the largest effect through productivity increases in regions with large yield gaps (sustainable intensification) and through efficiency improvements in the livestock sector.
- The pathway of Decentralised Solutions also mainly relies on productivity increases. In regions with high inputs and monocultures this is combined with lower emissions (nutrients, pesticides and GHG) and with (agro)biodiversity stimulation within and around the fields.
- In the Consumption Change pathway still 50% of the biodiversity gains come from increased productivity, followed by dietary changes and reduction of food waste.

## 60% of global biodiversity loss caused by the food sector



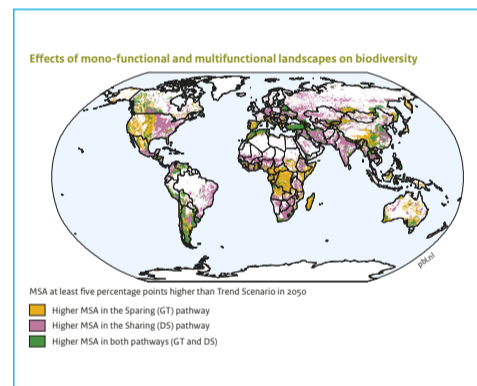
Source: PBL

## Key position for purchasing companies and retailers



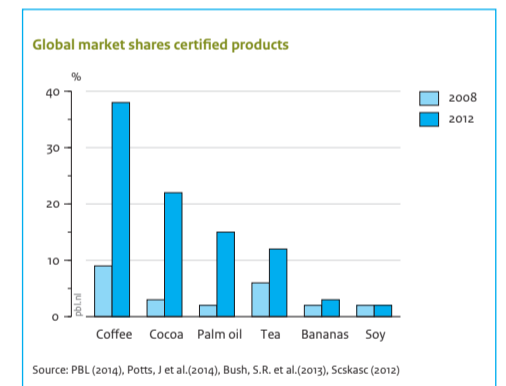
Source: PBL

## Biodiversity spared by improved management of farmlands



Source: PBL

## Integration of biodiversity in supply chain certification



Source: PBL (2014), Potts, J et al.(2014), Bush, S.R. et al.(2013), Sckscasc (2012)

Global terrestrial biodiversity loss is estimated at about 30% in 2010. Almost 60% of this loss is caused by the crop and livestock production sector. Its impact is expected to increase as 30-70% more food is needed by 2050 depending on future diets. As a consequence in a Trend scenario an extra biodiversity loss of 3,5% (from 17,5% to 21%) is expected. Biodiversity is expressed as 'Mean Species Abundance' (MSA). MSA is an indicator of the naturalness of an ecosystem.

The extent and mode of impact, dependencies and risks, as well as the opportunities nature provides, differ between low productivity agriculture and intensive, high input agriculture. The food sector is large and diverse.

- One billion smallholders (mainly in Africa and Asia) feed around 5 billion people, whereas around 15 million medium- to large-scale farms feed about 1 billion people who mainly live in cities. This diversity is reflected in the rest of the food system.
- In modern food systems processing industries and retailers hold key positions to influence producers and consumers. These actors might have impacts on the local level as well as globally, through trade and pricing mechanisms.

Optimal solutions for improved management of farmland differ by region.

- In regions with high yield gaps sustainable intensification (*land sparing*) is the most effective strategy for halting biodiversity loss. It prevents farmland expansion thus sparing biodiversity.
- In highly mechanised farming systems biodiversity can be conserved or restored through decreasing inputs to an eco-efficient level and integrating nature elements in the agricultural landscape (*ecologisation of agriculture and land sharing*).

In the green areas on the map both land sparing and land sharing strategies are effective in realizing positive biodiversity effects.

Market shares of certified products have been growing steadily during the last half decade. Biodiversity criteria are only occasionally applied in certification schemes. To maximize the impact of certification such criteria should be included and their impact monitored.

Further strategies are:

- Raising consumer awareness on the potential of biodiversity for, *inter alia*, food security and health. Retailers and processing industries can use their key position in the food chain to influence consumer choices.
- Mobilizing finance by improving the business case for biodiversity. Governments could apply biodiversity criteria for production subsidies and consumer subsidies.

Governments need to play an enabling and regulatory role to protect public goods and to involve relevant private and societal actors.

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PBL Netherlands Environmental Assessment Agency is the national institute for strategic policy analysis in the fields of environment, nature and spatial planning.

**Reference:** Marcel Kok, Rob Alkemade (Eds) (2014). How sectors can contribute to sustainable use and conservation of biodiversity. CBD Technical Series No. 79

This report was presented at the CBD COP-12 in Korea, October 2014. It illustrates the potential that natural capital and nature-based solutions offer for the food sector, forestry, fisheries and water management.

