



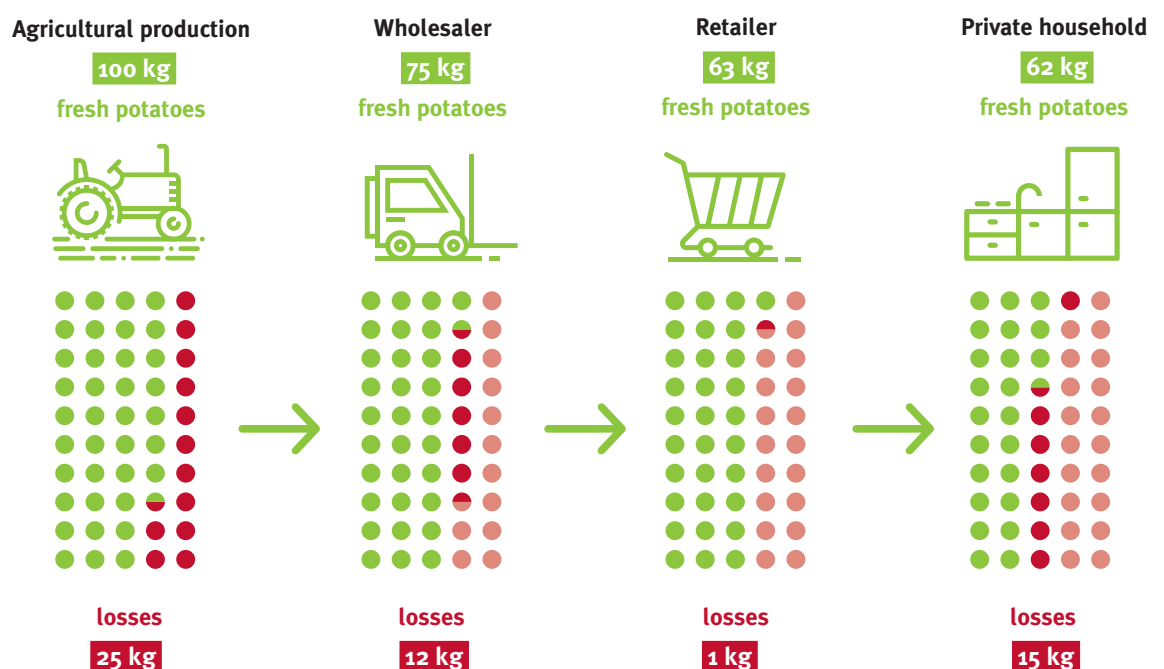
## Strategies for reducing food losses: a case on potatoes

53 per cent of Swiss fresh potatoes never reach the dinner table. On the one hand, many tubers do not meet the quality criteria set by commerce and industry. On the other hand, a sizeable part of the crop spoils in consumer households. Besides the wasted money, the losses also have an unnecessary negative impact on the environment. For the researchers participating in NRP 69, action could be taken at the consumer's end: new selling and packaging concepts could reduce the losses. In order to make Swiss potato production more sustainable, tubers of inferior quality should be removed as early as possible from the supply chain and used for other purpose, e.g. animal feed or biogas.

Around one third of all food produced worldwide is lost instead of being consumed by humans. Not only do these food losses take their toll financially, they also cause a waste of natural resources and a negative impact on the environment. Potatoes suffer some of the highest loss rates. Researchers working for an NRP 69 project analysed potato losses in Switzerland along the entire processing chain, from the field to the consumer. Their results suggest that 46% per cent of the potatoes that are industrially processed go to

waste. 26 per cent are lost during the harvest, 6 per cent in trading, 12 per cent during processing and a further 2 per cent in consumer households. The situation is slightly different for fresh potatoes that are sold to the consumer as whole tubers. The total losses here come to 53 per cent of the crop. A quarter is lost at farms, 12 per cent with wholesalers, 1 per cent with retailers and 15 per cent in the consumer household (see graph). Losses in private households stem from the fact that consumers buy more potatoes than they can

### Fresh potato losses along the processing chain



Out of a total of 100 kilograms, only 47 kilograms of fresh potatoes reach the dinner table. Instead of being consumed by humans, 53 per cent of the crop are lost along the processing chain.

use by the time the potatoes become inedible. On the other hand, most of the losses in production and in wholesale trading are due to tubers that do not meet quality standards.

**Consumers pay little attention to the form and size of potatoes. Therefore, purely aesthetic selection criteria could be applied less stringently.**

Therefore, the researchers investigated whether lower quality standards might reduce potato losses. Their results do not allow for definite conclusions. Traders and processors pointed out that lower standards in production would have to be compensated further downstream as unhealthy potatoes tend to infect healthy ones, making it difficult to store lower-quality harvests for longer periods. Surveys have shown that consumers, too, prefer healthy tubers but pay little attention to the form and size of potatoes. This implies that purely aesthetic selection criteria could be applied less stringently.

The researchers then analysed different strategies aimed at reducing losses in the potato processing chain. After considering all aspects – e.g. environmental factors, cost-efficiency, the perspective of the consumer – they came to the conclusion that the most promising area for reducing losses was the consumer household (see recommendations). In principle, the losses due to quality standards could also be reduced by using additional pesticides, but this approach is strongly rejected by consumers. The negative environmental impact along the supply chain is best alleviated by a more systematic use of rejected potatoes as animal feed. Today, 68 per cent of fresh potatoes that are not approved for human consumption are already being fed to animals, and a further 4-8 per cent are being used to produce biogas.

Further information:  
[www.nrp69.ch](http://www.nrp69.ch)

## Recommendations

### Novel packaging reduces household losses

The project team tested different strategies aimed at reducing potato losses. They discovered that strategies targeting consumer households were the most promising. Losses in private households are the least sustainable because the potatoes are mostly disposed off as waste and cannot be used in other ways. The researchers put forward the following recommendations:

- By using different packaging, consumers would be able to reduce household potato losses by approximately five per cent. Open sales of tubers or a choice between packages of different sizes could prompt consumers to buy the right amount, there-

by reducing the share that is thrown away. A longer storage period would have the same effect. As unwashed potatoes in a lightproof cardboard box, in particular, can be kept longer, it would make sense to consider this type of packaging.

- Surveys have shown that appearance is of no importance to consumers when they buy potatoes. The project team therefore recommends a review of quality standards that are focused exclusively on aesthetic criteria. Potato losses during the harvest could be reduced if fewer potatoes were sorted out because of their form or size.