How to evaluate applications of nanotechnology for the packaging of organic food

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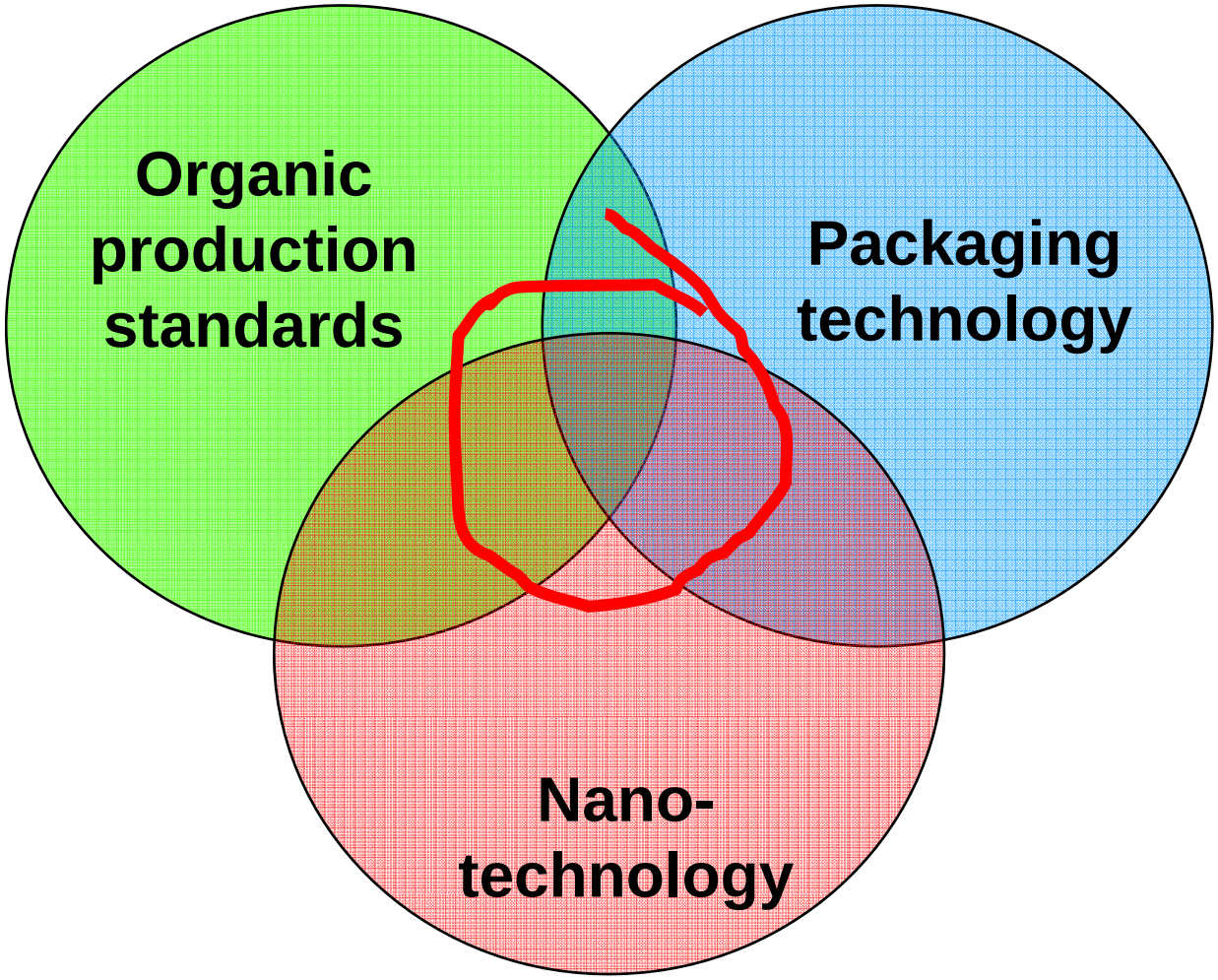
The subject is interdisciplinary



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Current evaluation systems in organic farming

Organic farming

- Evaluation of «inputs» (fertilizers, plant protection products, disinfectants, food & feed additives etc.)
- Idea: the evaluation compares benefits and risks of an input, considering its intended use

benefits  risks ??

- In the case of nano-technology, the benefits (improved functionality) are quite clear, while the risks are uncertain!

General criteria for inputs evaluation

Organic farming

	positive	negative
Necessity of intended use (functionality)	…….....	
Environmental impact	…….....	…….....
Human health impact	…….....	…….....
Origin (natural vs. synthetic)		…….....
Consistency with principles of organic farming	…….....	…….....

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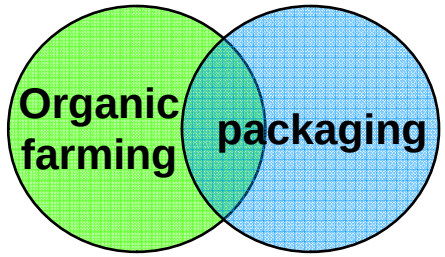
Good packaging of organic foods

- Protects food from dirt, decay and contamination. Enables long shelf life. Allows clear separation of organic and other foods.
- Does not contaminate the food by itself.
- Is easy to handle during packaging and by the consumer.
- Has low impact on the environment (manufacture & disposal). Makes careful use of resources.
- Looks attractive, supports organic character of the product.

Standards for packaging of organic food



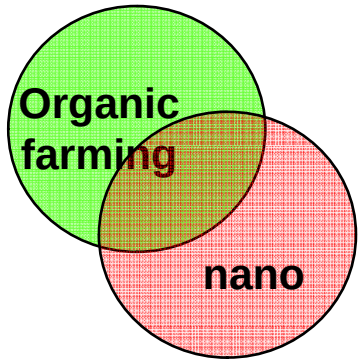
Packaging is not as strictly regulated as production.

Legal Organic Regulations (e.g. EU): no specifications on packaging.

Some private standards (e.g. IFOAM, Soil Association, Naturland, Bioland, Bio Suisse, Demeter) cover packaging. Main aspects:

- **Use only necessary packaging.**
- **Use reusable, recycled, recyclable or biodegradable materials whenever possible.**
- **Packaging does not contaminate the organic product.**

Nano-technology / nano-particles and organic farming



- Several discussion meetings within the organic sector (BioFach 2008; IFOAM conference 2008; Berlin 2008; IFOAM EU group).
- The organic sector as a whole has not yet made up its opinion on nano-technology.
- Some label organisations have made up their opinion and have published standards or position papers on nano-technology (e.g. Soil Association).
- Overview: see www.fibl.org/nanotechnology/

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Replacement of unwanted materials? (e.g. aluminium by SiO_x)

Better functionality of packaging?

Contamination of the environment after disposal?

Less packaging material needed?

	positive	negative
Necessity	.....	
Environmental impact	.....	.....
Human health	.....	.....
Origin (natural vs. synthetic)		.....
Principles of organic farming	.....	.....

Slower decay of food?

Less preservatives needed?

Contamination of the organic food?

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Your opinion …

> **Positive aspects?**

> **Negative aspects?**

Thank you for your attention!

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