

## **Results of the workshop «Nanotechnology»**

held at the IFOAM Organic World Congress 2008 in Modena<sup>1</sup>.

**Date & time:** Friday afternoon, 20 June 2008, 14.30 – 18.00 h

**location:** Faculty of Law (Facolta' di Giurisprudenza), Aula II

### **Potential benefits mentioned in the working groups**

- Each case has to be looked at separately.
- Quantitative reduction of pesticides.
- Improved N use efficiency?
- New veterinary treatments.
- More efficient machinery.
- More hygiene with less dangerous chemicals.
- Nutritional improvements?
- Avoid certain chemicals in cosmetics.
- Intelligent packaging.
- Longer shelf life.
- "Brave new world".

### **Potential risks mentioned in the working groups**

The following listing of risks was compiled verbatim from workshop attendee comments. The attendees split into three groups (labelled below as Group A, B and C); all participated in these "roundabout exercise" breakout sessions, and almost all contributed to this list. The comments are presented in the sequence in which they were expressed by attendees. The list is intended to be a complete and exhaustive account of attendee comments, however I apologise in advance for any risks that may have been expressed but were not captured, and for any risks that were expressed but were inadequately or incompletely captured in my written record. Each comment has the potential to be explored and elaborated, and it is hoped that this listing may serve as a catalyst for further discussion and action. – John Paull.

#### *Group A*

- Loss of markets due to consumer blowback.
- Financial and health risks.
- Is it possible to destroy genetic material?
- Are the risks different with different uses, for example in a closed environment?
- Do you need it? Are there other solutions instead? Is there a risk of adopting hi-tech solutions for simple problems?
- Toxic effects.
- End of life issues.
- If Organic Agriculture says no [to nanoparticles], how can we be sure they are not invading? Like GMO pollen? Is there a need for buffer zones?
- Cross contamination.
- What if it's in the water?
- Cannot be detected with existing protocols.
- The fact there is no risk assessment of this technology poses a risk in itself.

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<sup>1</sup> **Website:** [http://www.ifoam.org/events/ifoam\\_conferences/owc/modules/fri\\_workshop\\_nanotechnology.html](http://www.ifoam.org/events/ifoam_conferences/owc/modules/fri_workshop_nanotechnology.html)

- The tested-for properties may change in a new-found environment.
- We can't say, or rely on, a prior history of safe use.

#### *Group B*

- Unknown, unpredictable and un-researched effects – both long and short term.
- Is this another treadmill for farmers and consumers?
- Is this another 'blind alley'? It's a non-transparent technology. It's a big new experiment, and we are the guinea pigs.
- It's largely unethical and anti-social-justice. Because you can, doesn't mean you should. Some will, because of economic circumstances, consume it.
- This is a heterogeneous technology.
- The side effects are unknown.
- Plant protection agents may affect soil organisms and water organisms.
- It might look safer because you are using less.
- Can it escape?
- The cost barriers to the development of nanotechnology favours agri-business.
- New substances lead to new risks.
- Anti-microbials can lead to an over-sanitized environment and this can lead to immune system effects.
- Once released, nanoparticles cannot be recalled.
- We don't have enough confidence in regulatory authorities to trust them.
- Put it in testing for thirty years before release to assess long term effects, remember 2,4,5-T and thalidomide.

#### *Group C*

- We don't know what its potential is, for good or bad.
- Because nanoparticles are so small, they may have different penetration of cells of crops and consumers, for example antibacterial properties could be very bad, and cause internal sterilization.
- Toxicity for consumers, maybe they intoxicate themselves.
- Existing balances, for example of microbial balance, may be disturbed without us knowing it.
- It's difficult to judge - those who make the benefits only tell us the good things – and we may not have a choice or full knowledge.
- The economic risk of maybe new weird diseases and then health costs.
- Anyone can get hold of it – malicious use.
- Bio-accumulation.
- With its wonderful promises and intelligent sensors – it may be too intelligent.
- Social and political intrusion.
- Uncertainty and the blind willingness to find easy solutions.
- The real risk is unknown.

#### **Aspects of public perception and gut feeling mentioned in the working groups**

- The public perception is generally low throughout Europe - they are not really aware of nanotechnology. There are some negative references to 'grey goo', but otherwise the little publicity there is, is generally positive, e.g. anti-bacterial socks, intelligent packaging that indicates freshness. In some cases, nanotechnology is incorporated without reference to 'nano', sometimes highlighting

'nano' but both inferring advanced science based development heralding a brave new world of sophistication.

- When the public are given the information and engaged in discussion, they are generally horrified at the possible risks and negative implications.
- Nanotechnology is different from GE (genetic engineering). The former generally manifests itself in products, whereas in the latter the process is at issue. Nanotechnology is also applicable in a very wide range of industries, products and uses, whereas GMOs are very narrow. It is therefore much more complex to argue the case against nanotechnology compared with GMOs.
- Coupled with the above, it may even be that some applications of nanotechnology can be genuinely beneficial, for example it may be that copper fungicide using copper nanoparticles could use much smaller quantities of copper.
- It may be difficult to start banning nanoparticles without ensuring that there is a public debate about the issues. There are also risks to be seen as being anti-technology (which we are not), if we demonise another technology.
- However we do need to stick to our principles and particularly the precautionary principle in considering nanoparticles.
- It may be that we have to consider individual nanoparticles or applications of nanotechnology on a case by case basis.

### **Recommendations of the plenum**

1. IFOAM should have a task force on nano-particles (note: the decision on this was postponed at the general assembly in Modena).
2. There should be a web-based source of information (note: for the moment, [www.fibl.org/nanotechnology/](http://www.fibl.org/nanotechnology/) will be used).
3. A precautionary approach should be taken.
4. The global south should also be heard.
5. Organic farming should be careful not to be seen as “against everything” (issue of communication).