Frequently Asked Questions on Pesticides

What are pesticides?

Pesticide is a broad term, covering a range of products that are used to control pests. Slug pellets, ant powder, weed killers, rat and mouse baits are all pesticides. Other pesticides you may have heard of include:

- insect killers (insecticides)
- mould and fungi killers (fungicides)
- weed-killers (herbicides)
- slug pellets (molluscicides)
- plant growth regulators
- bird and animal repellents and
- rat and mouse killers (rodenticides).

Note that the term "pesticides" can be broken down into two - plant protection products and biocides.

What Legislations concern pesticides?

- Pesticides Control Act XI of 2001
- the Plant Protection Products Regulations
- the Biocides Regulations

What is meant by pesticide residues?

Pesticide residues is the term used for any remains of active substances and their degradation products in or on a food. Degradation products may be formed during plant metabolism or, for example, when there is exposure to sunlight.

How is it possible that the use of plant protection products can leave residues on the harvested crops?

Residues on harvested crops cannot be completely prevented even in the case of good agricultural practice and the proper use of pesticides. Plant protection products are used at different times during the vegetation period. The speed at which their active substances are degraded varies considerably. Residues must be expected at the time of

harvesting, particularly when plant protection products are applied shortly before harvesting or when their active substances are long-lived. However, the levels must by so low that they do not pose a threat to human health.

What harm can be done to humans from the excessive remnant of pesticide in vegetables?

Some vegetables contain excessive residues of pesticides, the use of which is banned by the government. All pesticides are toxic with negative impact on human health and ecological environment. There are two kinds of harm to human health: acute poisoning and chronic poisoning.

Acute poisoning refers to the immediate effect if the pesticide is swallowed, inhaled or absorbed through skin it occurs during exposure or shortly afterwards. The symptoms of poisoning include headache, nausea, excessive perspiration, air hunger, spasm, unconsciousness. The symptoms of pesticide poisoning can easily be confused with common illnesses and may go unnoticed. Acute poisoning can result in death especially without timely emergency treatment.

As well as the acute, short term adverse effects of pesticide, there is the risk of longer term chronic effects. Pesticide can cause a variety of chronic illnesses and conditions including cancer, reproductive disorders such as infertility (linked to low sperm count) or genetic defects; and disruption to hormone, or endocrine systems which may take years to become manifested. Long-term intake of pesticide-contaminated food might further result in a continuous accumulation of pesticide within the body. Chronic poisoning has no obvious symptoms in the body and thus is hard to detect.

Over 170 kinds of pesticide have been ranked as a carcinogen. Some pesticides such as DDT, Lindane and Atrazin are now suspected of being endocrine disrupting chemicals (EDCs). These chemicals affect parts of the body's hormone systems at very low doses and can lead to increase birth defects, sexual abnormalities, reproductive failure and the risk of breast and testicular cancers in animals (including humans). The mechanism of the effect is not well understood. Illegal pesticides are very difficult to degrade and were banned. DDT (an illegal pesticide) can get accumulated through the food chain and even pass through breast milk to the infant (half life being 7 – 8 years). Mixture of different pesticides might bring on the cocktail effect. The damage to human body will be more severe than any single kind of chemical but more research is needed in this section.

What is the difference between plant protection products and active substances?

Active substances are chemical elements and compounds or micro-organisms with general or targeted action against harmful organisms, on plants, on parts of plants or on plant products. Plant protection products are commercially available preparations which contain one or more active substances.

Can we get rid of the excessive residues of pesticide in vegetables through cleaning and heating?

No – consumers cannot determine the amount of pesticide residues from the appearance. Careful cleaning before eating can hopefully get rid of much of it but some pesticides can be absorbed into the plant. So washing the exterior cannot completely get rid of all the pesticide. Heating is also unable to get rid of all the pesticides.

Aren't registered pesticides safe?

Just because a pesticide has been registered, it does not mean that it is safe. The pesticide registration system does not protect the most vulnerable and sensitive life stages. Toxic effects may not have been established at the time of registration and once some toxic effects come to light, use of a pesticide may continue for years.

Why is the EC reviewing pesticides?

The aim of the EC Review is to harmonise the use of pesticides throughout the European Community. Under this review, existing active substances are considered for inclusion on a positive list called Annex 1. This is where the active substances have been shown to be without unacceptable risk to people or the environment.

What are maximum residue levels?

A maximum residue level indicates the maximum admissible concentration of an active pesticide substance in or on a food. Maximum residue levels serve as binding trade standards for guaranteeing the free movement of goods. Foods may only be placed on the market when they comply with maximum residue levels.

Which requirements must be met by maximum residue levels?

In order to set a maximum residue level, the residues must be identifiable analytically. A toxicological assessment must be available and the residue behaviour of the active substance must be documented. Maximum residue levels may not constitute either an acute or a chronic risk for consumers.

Why are maximum residue levels changed?

The setting of maximum residue levels is an ongoing process. As soon as applications for new users and/or new pesticides are received and corresponding residue tests are

submitted, the existing maximum level must be re-evaluated and, if necessary, amended. When new maximum levels are established in the EU, they must also be transposed into national law and the corresponding maximum residue levels amended if necessary. Furthermore, maximum residue levels are adapted in line with scientific findings. New toxicity studies or new consumption data, for instance, may lead to a change in existing maximum residue levels because risk assessment has been updated and the safety of maximum residue levels has been reviewed.

What happens when a residue exceeds the maximum residue level?

The exceeding of a maximum residue level constitutes a violation of applicable law. The product in question is not marketable. This doesn't necessarily mean that the identified residue constitutes a risk for consumers as maximum residue levels are not toxicological threshold values. When the limit is exceeded a risk assessment is undertaken. In most cases the residue identified in the past was not harmful for consumers

Why is it necessary to have a Thematic Strategy on the sustainable use of pesticides?

Despite the existing policies and legislation, actual consumption and use of pesticides in the EU has not decreased between 1992 and 2003. In 2003, approximately 300,000tons of active substances were sold in the EU. 5% of food and feed samples still contain unwanted residues of pesticides in quantities which exceed the maximum regulatory limits. This percentage has not declines between 1996 and 2003. According to the European water suppliers organization, pesticide contamination of raw water is very severe in lowland rivers. A high proportion of this water is contaminated beyond the 0.1 µg/L threshold value and has to undergo pesticide removal treatment before it can be distributed as drinking water.

The current EU legal framework scarcely addresses the actual use phase of the pesticides life-cycle, although it is a key element for determining the overall risks that pesticides entail. The very purpose of the Thematic Strategy on pesticides is to address this deficiency. "Use" includes all the operations carried out by actual users, like the temporary storage of pesticides at farm level, the management/calibration of application equipment, protection of operators with appropriate personal protection equipment, preparation of the spraying solution and the application itself.

Some Member States have already adopted measures to reduce the risks for health and the environment linked to pesticide use, while others have not yet taken such action. Therefore there is no level playing field for pesticides users and the pesticide industry. Furthermore, the level of protection of human health or the environment varies a lot throughout the EU and pesticides use statistics show diverging trends between Member States.

Without any EU intervention, this trend is very likely to continue leading to totally different levels of protection of health and environment and diverging conditions for the main users of pesticides (farmers) in the Member States. Setting equal standards and objectives to be achiever in all Member States can only be done at EU level.

What does the Strategy contain?

The Strategy focuses on plant protection products (PPP), the largest group of pesticides. Its scope might be enlarged in due course to include biocides but more time is needed to evaluate the impact of the existing biocides legislation, which is more recent than the one on PPPs.

The overall objective of the Thematic Strategy is to reduce the impacts of PPPs on human health and the environment, improve the way pesticides are used and reduce the use of pesticides in a way which is consistent with the necessary level of protection against pests. It is composed of a number of individual measures that will either be implemented using existing EU laws or if not feasible, will be proposed as new legislation, mainly in a proposal for a Framework Directive.

The new Framework Directive proposes that:

1. Member States establish National Action Plans to reduce hazards, risks and dependence on chemical control for plant protection. This will ensure overall coherence between the Member States which have already adopted such measures and those who have not. Within this framework, individual Member States will still be able to set up their own targets and timetables, according to the structure of their agricultural sector, climatic and geographical conditions, existing national legislation and programmes;
2. Stakeholders be involved in setting up, implementing and adapting the national plans;
3. A system of awareness-raising and training of all professional pesticides users be created;
4. Compulsory inspection of existing application equipment be introduced;
5. Aerial spraying be only authorized to situations where there are not viable alternatives or where it has clear advantage in terms of reduced impacts on health and the environment in comparison to land-based application of pesticides;
6. Protection of the aquatic environment be enhanced, inter alia by the creation of buffer strips along water courses and the use of low spray drift equipment;
7. Areas of significantly reduced or zero pesticide use be designated by Member States, in particular when establishing conservation measures for Natura 2000 areas;
8. Safe conditions be established for storage and handling of pesticides and their packaging and remnants;
9. Essential conditions for implementation of Integrated Pest Management be developed by Member States and crop-specific standards for IPM should be developed at EU level;

10. Appropriate harmonized indicators be developed to measure progress in risk reduction;

What other measures does the Strategy propose?

The following measures are to be integrated in existing legal instruments:

1. Improving systems for monitoring compliance with the legal requirements concerning the distribution and use of PPIs[1]. Member States will be required to report poisoning incidents involving pesticides for operators, bystanders, residents, consumers and wildlife;
2. Integration of comparative assessment and of the substitution principle in the assessment of active substances and in decision-making[2];
3. Promotion of low pesticide-input farming to work towards production systems where pesticides are used only when no other practical alternative is available to control and limit the damage caused by pests[3];
4. Reinforcement of annual monitoring programmes on residues of pesticides in food and feed[4];
5. Determination of pesticide concentrations in water[5];
6. Certification of new application equipment;
7. collection of data on sales and use of pesticides by Member States;
8. Research on pesticides with the objective of improving the health and well being of EU citizens through higher quality food and improved control of food production and related environmental factors, as well as facilitating risk assessment at farm level[6];
9. Invitation to Member States to apply standard VAT rates to pesticides in order to contribute to reducing the incentive for illegal cross border exchange of non-authorised products due to price differentials.

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1. Substantial amendment of article 17 of Directive 91/414/EEC).
2. Including in Annex I of Directive 91/414/EEC.
3. Clear definitions and EU-wide standards of Integrated Pest Management and Good Environmental Practice will be proposed for inclusion in the Regulation revising Directive 91/414/EEC, so that their implementation would be compulsory and subject to cross compliance.
4. Through the Regulation on setting Maximum Residue Levels.
5. Monitoring of pesticides in water is provided for in the Water Framework Directive.
6. Within the 6th and 7th Community Framework Programmes for Research.