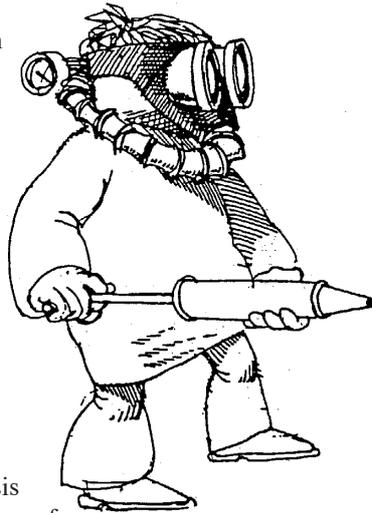


Vinclozolin

Use

Vinclozolin is a fungicide approved for use on beans, peas, oilseed rape, amenity and sports turf, as well as on apples before blossom falls. It is used on the European Continent on many crops including on grapevines. In the past, it has been used illegally on winter lettuce, in at least one case in the UK, from which prosecutions resulted.

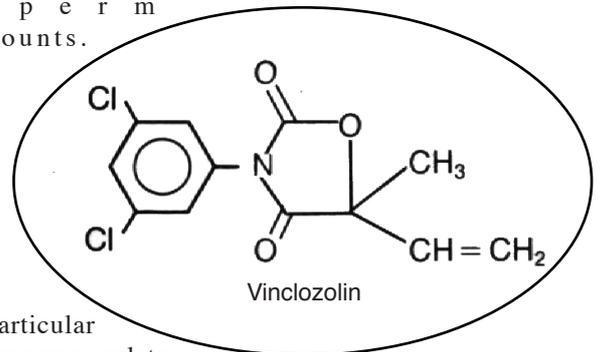
Vinclozolin is an endocrine disrupting chemical or EDC. It interferes with the action of male hormones - it is an anti-androgenic substance. Furthermore, vinclozolin breaks down into other anti-androgenic compounds, for example after hydrolysis in the soil. Residues of breakdown products of vinclozolin can be found in food. In Britain as well as Germany up to 50 tonnes of vinclozolin are used each year.



between 10 and 100 times as effective as the parent compound in terms of anti-androgenic activity. Two anti-androgenic metabolites of vinclozolin have been found in plants exposed to vinclozolin.

Human exposure

There is great concern about EDCs and the potential effects on humans. There are reported increases in the incidence in males of hypospadias, testicular cancers and undescended testicles as well as decreasing sperm counts.



Particular concerns relate to the potential for synergistic effects of different EDCs that may not, on their own, have any effect. As vinclozolin residues can be found in food, there is no doubt that human exposure is occurring.

Toxicity

Vinclozolin can feminise male rats, remove their reproductive capacity and cause birth defects in male rats such as malformation of the genitals. In particular, the US Environment Protection Agency has suggested that vinclozolin could prevent the proper development of the male reproductive organs in mammals by inhibiting the binding of the male hormone to the androgen receptor. While vinclozolin is not very persistent in the field, with a half-life of between 1 and 42 days, breakdown products of vinclozolin are

North-East Atlantic and International Action

The 1995 Ministerial Declaration on the Protection of the North Sea at Esbjerg specifically highlighted EDCs and requested the Oslo and Paris Commissions (OSPAR) and the European Commission to "adopt necessary measures" by the year 2000. The use of vinclozolin is being reviewed under European Union legislation.

In 1997, the United Nations Economic Commission for Europe (UNECE) negotiated a Protocol on Persistent Organic Pollutants to focus initially on 15 or so groups or substances, some of which are EDCs. However by no means all identified EDCs are to be covered by this Protocol. Vinclozolin will not be covered.

Internationally, the Intergovernmental Forum on Chemical Safety (IFCS), set up after UNCED in 1994 between the EU and USA has formed a joint working group to co-ordinate research and the OECD is developing testing methods for endocrinicity.

The manufacturers of vinclozolin appear to wish to increase its use. The US Federal Insecticide, Fungicide and Rodenticide Act Scientific Advisory Panel and Science Advisory Board, concluded in 1996 that "the data on vinclozolin presents a clear picture of an androgenic chemical". However, in the USA, the

Endocrine Disrupting Chemicals: Vinclozolin

For information, contact:

Stephan Lutter
 WWF North-East Atlantic Programme
 Am Güthpol 11 · D-28757 Bremen · Germany
 Tel: +49 421 65846-22 · Fax: +49 421 65846-12
 E-mail: lutter@wwf.de

UK Action

In 1991, the UK Advisory Committee on Pesticides decided that until further ecotoxicological research results were available, a maximum human exposure to vinclozolin of 9 micrograms/kg body weight should be set, which led to the suspension of some uses by regulatory action in March 1991. Tighter controls on the use of vinclozolin resulted from the discovery of illegal use of vinclozolin on winter lettuce in the UK.

In January 1998, the Environment Agency for England and Wales called for unilateral action from industry to minimise the entry of known or potential endocrine disruptors to the environment by phasing out the use of existing products and developing substitutes, although the Agency did not specifically cite vinclozolin. The Agency suggested identifying potential EDCs, developing a complete set of environmental quality standards which take into account endocrine disrupting activity, using Integrated Pollution Control and the new Integrated Pollution Prevention and Control (IPPC) Directive to minimise the discharge of EDCs by industry and carrying out further research to look at the effects of EDCs on wildlife.

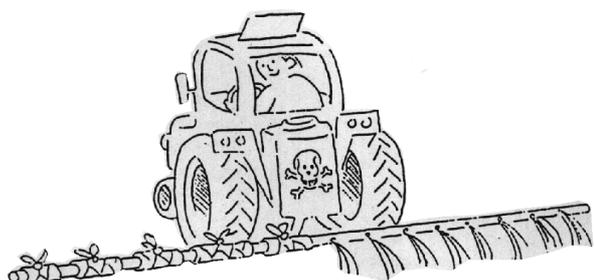
In February 1998, the UK Government Panel on Sustainable Development reported on EDCs stating that *“the most pressing requirement is the validation of test methods in order to identify these chemical endocrine disruptors”*. The Panel also raises the question of synergistic and dose-related effects of these chemicals and asks whether some EDCs *“should be phased out as a precautionary measure as safer substitutes become available;”* Also in February 1998, the House of Commons Environment Sub-Committee called on the water industry in particular to carry out more research as *“a matter of highest priority”* to establish which substances within effluents are responsible for hormone disruption.

The UK Department of the Environment, Transport and the Regions has recently established an Interdepartmental Group on Endocrine Disruptors (IGED) focussing on risk assessment of chemicals, prioritising and testing of chemicals, human health effects research, effects on wildlife, regulatory action and consultation.

manufacturers of vinclozolin, BASF, applied in August 1997 to the US Environmental Protection Agency for a new use in the registration of vinclozolin - application on succulent beans. US EPA was unable to approve this, because EPA has to apply a standard of *“reasonable certainty of no harm”*, and could not do so because of the aggregate risk of vinclozolin in this application together with other approved uses of vinclozolin. So to make it possible for EPA to approve this new use, BASF requested deletion of EPA approvals of use of vinclozolin on plums, grapes, tomatoes, residential turf, and turf in parks, school grounds, and recreational sites.

Reduction of Inputs

WWF recommends that the amount of vinclozolin released into the environment should be reduced in line with the precautionary principle, with a view to phasing out its use entirely.



In relation to all EDCs, WWF believes that

- The OSPAR Commission should take immediate action to phase out and eliminate already identified endocrine disruptors. Furthermore endocrine disrupting properties should rank high under the prioritisation process for hazardous substances to be considered for such measures;
- Current toxicity tests need to be improved with re-testing of substances undertaken;
- Research needs to be adequately funded, prioritised and co-ordinated;
- An international task force needs to be set up to assess the potential effects of hormone disrupting chemicals and opportunities to reduce their use;
- The European Commission should establish a unit or working group on endocrine disrupting chemicals.

Text prepared by Guy Linley-Adams

References/Further Reading

US EPA (1997) Notice of receipt to delete uses. Federal Register, volume 62, No. 159, August 13, 1997, page 43327.

Environment Agency for England and Wales (1998) Endocrine disrupting substances in the environment: what should be done? Consultative Report. Environmental Issues Series.

WWF UK (1996) Vinclozolin. A briefing for WWF United Kingdom by Gwynne Lyons.