



PROTECT MOLECULES TO PROTECT CROPS

Product Stewardship is indispensable to foster the sustainability of available soil fumigants

Good Stewardship may preserve products from a regulatory and technical perspective, matching the best principles of Integrated Pest Management (IPM)...

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A successful derogation campaign 2015 for DMDS in Italy

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IN THE SOIL, NOT IN THE AIR

TIF (Totally Impermeable Film): the plastic film for sustainable soil fumigation

Products must stay in the soil, not diffuse into the air. The right choice of plastic film makes the difference between success and failure...

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GUARDIANS OF NATURE

NEMGUARD a new Bio-nematicide for Certis

Integration of different tools, agronomic, chemical and natural, leads to best control of nematodes...

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The best results come from the right combination of the right product with the right machine...

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PROTECT MOLECULES TO PROTECT CROPS

Product Stewardship is indispensable to foster the sustainability of available soil fumigants

EDITOR LETTER



Soil fumigants are globally indispensable in the face of the so called "soil disease complex". Moreover, nematodes may make it impossible to grow healthy crops in a competitive way. Soil fumigants are often broad spectrum, at high rates and have a "not brilliant" human/environmental profile. This makes them vulnerable to all kinds of regulatory restrictions or even decisions to ban/withdraw them, increasing as a consequence the pressure on existing products and reducing the number of available solutions for growers in complete contrast to the strongest principles of Integrated Pest Management (IPM), which are based on a wide range of technical tools. So, in order to guarantee the sustainable use of soil fumigants it is necessary to protect them in the market by means of robust Product Stewardship programmes. First, these programmes introduce Best Management Principles (BMP) at user level in order to mitigate risks to humans and the environment. In addition, they create tools and information which may be useful in the product (re)registration process, defending products in the longer term and increasing their life cycle. With this in mind, Certis Europe has developed specific Stewardship programmes in line with the Sustainable Use Directive that is applicable to soil fumigants in our Cleanstart portfolio. Although each Stewardship programme is product specific, they consist of a number of key elements.



As well as Certis' in house expertise, these programmes also rely on the support and commitment from our whole distribution chain. Nevertheless, it must be emphasised that this change of paradigms cannot be achieved overnight but is a long term process. Certis Europe strongly believes that Product Stewardship is, alongside IPM, an important pillar for Sustainable use and essential to defending the position of crop protection products in general and soil fumigants in particular, now and in the future.

PROFESSIONALISM WINS

A successful derogation campaign 2015 for DMDS in Italy



REGULATORY

There is a reduction in the EU in effective solutions for nematode control and this is creating a huge and growing issue. So, for many years we have been helping to get continuous derogations granted in several countries with 1,3-dichloropropene. Therefore growers and stakeholders are very interested in testing new and innovative products such as Dimethyl Disulfide (DMDS) as technical solutions for nematode control. The leading country in obtaining the first authorisation for emergency use in the EU is Italy. Certis has just successfully completed the derogation period for Accolade 94 EC (DMDS) in Italy, granted for the period from 15 July to 11 November 2015. Emergency use against root-knot nematodes, authorised under Regulation 1107/2009, involved several protected crops (pepper, eggplant, zucchini and cucumber) and the product was applied using drip fumigation lines by professional applicator companies (SIS, BT Agroservizi and SIIA). There was great interest in this new fumigant and several applications were made in different regions. This is the first derogation Certis received for Accolade in the EU, for which the dossier is currently in the evaluation process for Annex 1 listing by France as Rapporteur Member State. In accordance with Stewardship programmes for sustainable fumigation, Certis ensured in Italy not only the best performance of the product, but also minimised the risks for operators, bystanders, residents and the environment. The programme implemented contained



As this was the first time DMDS was used in Europe, a special monitoring programme was also put in place to check DMDS diffusion to air by application, plastic cut and final plastic removal. This programme, supported by Certis staff, involved three new product stewardship specialists, who have followed the applications closely in the field. There was also a close collaboration between Arkema and professional applicators, which led to the last derogation campaign in Italy as part of the CleanStart strategy, offering new technical solutions, training for soil management, diagnostic support and partnership with key customers. Certis Italy today, with this new achievement, is a major player in the soil treatment market, considering its CleanStart portfolio including Basamid, DD Soil, Accolade 94EC, Jet 5, and Tusal, a new soil biofungicide.

IN THE SOIL, NOT IN THE AIR

TIF (Totally Impermeable Film): the plastic film for sustainable soil fumigation

NEW MATERIALS

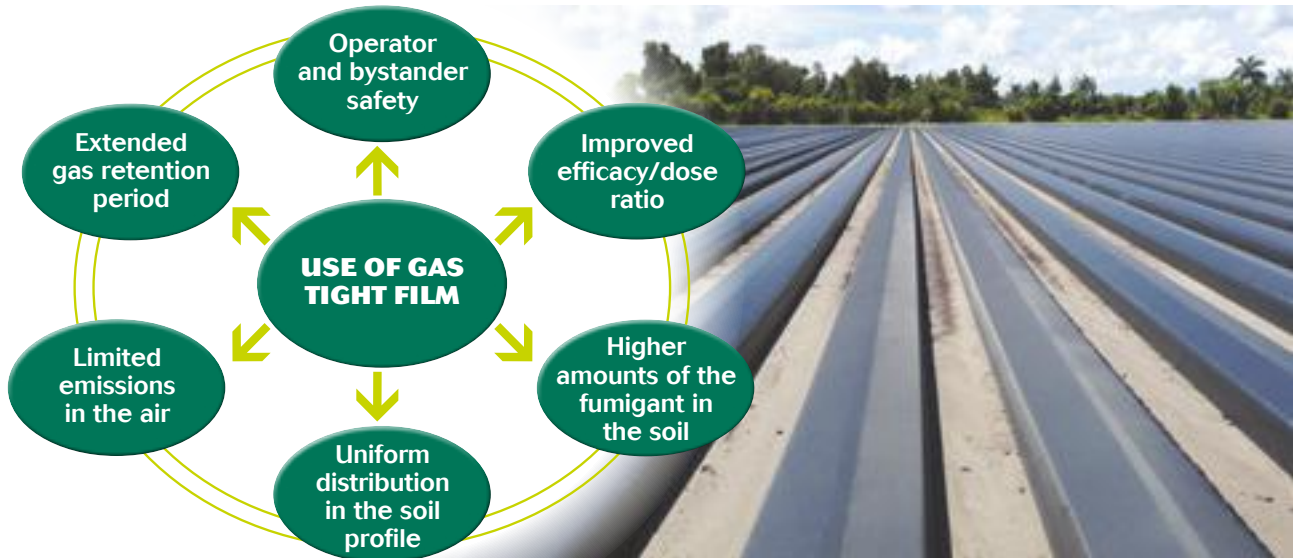


FIG. 1

Sustainable fumigation requires good stewardship practice to minimise gas emissions and the exposure of operators/bystanders. Therefore, use of plastic film that is impermeable to gases is the first technical choice. For instance, polyethylene films (low or high density) are highly permeable to fumigant gases, reducing both efficacy and safety for the environment and humans. So, no surprise that soil fumigants have been included in Annex I with the strict obligation of using gas tight film for application, which means Virtually Impermeable Film (VIF) or Totally Impermeable Film (TIF), ensuring a higher efficacy level and uniformity of result (Fig. 3). The former contains polyamide while the latter contains Ethylene Vinyl Alcohol Copolymer (EVOH).

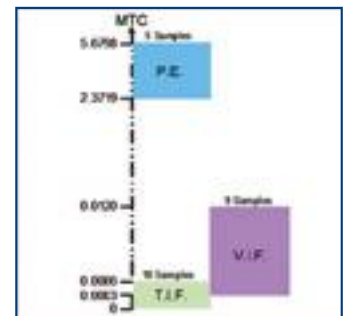


FIG. 2

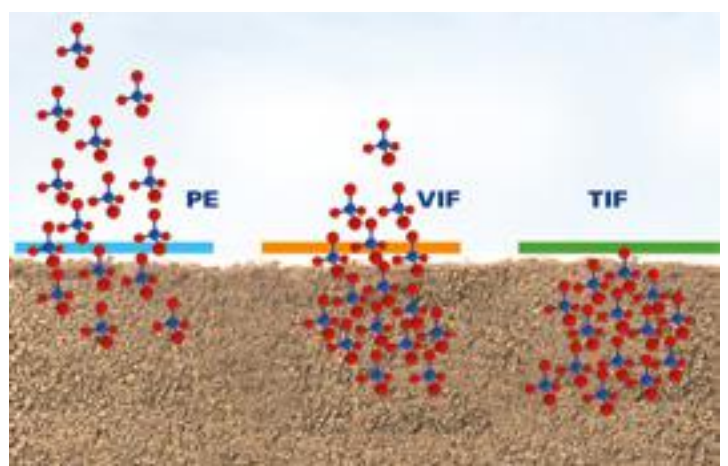
VIF and TIF have been compared to PE in high humidity and temperature conditions, very common in the protected field (see graph). Data confirms that PE is permeable to gas, while VIF performance is strongly affected depending on the quality level. TIF proves to be the least affected, showing reliable performance in all conditions. Ongoing trials are also showing good solarisation capacities for TIF films. The advantages of TIF include:

- Recyclable with polyethylene (VIF is not).
- Fumigant vapour barrier superior to LDPE/HDPE or VIF.
- Improved safety for applicators and bystanders/residents.
- Consistent integrity of the layer even in high Rh and T° conditions.
- Excellent flex-crack (mechanic) resistance.

MTC Synthesis of Agricultural Films to Various Fumigants at 25°C/68°F and High Umidity (R:H: of 90%) - Extract of "Evaluation of the Permeability of Agricultural Films to Various Fumigants (Environmental Science & Technology-Article-2011) See ref. in appendix



FIG. 3



GUARDIANS BY NATURE

NEMGUARD

a new Bio-nematicide for Certis

TECHNICAL



NEMguard is the new granular nematicide for open field crops, containing garlic extract (*Allium sativum*). Certis will launch it soon in Netherlands, Belgium and France, integrating it into its CleanStart programme for sustainable soil pest management. Garlic extract contains diallyl polysulfides which penetrate the cytosol of nematodes causing irreversible oxidative stress to thiols, causing death within the first 12-24 hours. Open field trials confirm NEMguard to be highly effective against several nematode species, so it may be used in combination with conventional nematicides or other biological and agronomic tools. A significant advantage of the product is that it has no MRL, and with multi-site activity, development of resistance is extremely unlikely.



PARTNERS IN EXCELLENCE

Certis interviews Forigo-Roter, producing machines suitable for soil treatment with machines for soil treatment

MACHINES & PRODUCTS



What are the key markets of focus for Forigo (submarkets/countries)?

"Right from the beginning, Forigo key markets have been Italy, France, Spain and Germany due to their long tradition in horticulture. Recently, the strong need for mechanisation in emerging markets, such as Latin America, Russia, Eastern Europe and Africa, boosted the development of our range, which has been enriched with dedicated technologies".

What is the importance of soil fumigation in the Forigo business?

"Fumigation is the most strategic link between modern techniques of soil cultivation combined with distribution of controlled fumigants, totally safe for the operator".

Which are the drivers to develop new technologies for soil fumigant application?

"Modern and innovative machines are developed following highly specific guidelines about operator safety, accuracy and homogeneity of distribution. This in close collaboration both with manufacturers of fumigants and farmers".

Which are the main innovations for applying Basamid and DMDS?

"Major innovations around Basamid have been born from the combination of dedicated machines and proper distribution systems, which ensure constant homogeneity of mixing soil and product throughout the working depth. Concerning DMDS, the real revolution came from a new distribution system, based on new specific materials that allow the distribution of any dose at different depths, all managed by automatic electronic systems, that guarantee operator's safety".

How do machinery manufacturers see the stewardship requirements for the future?

"Since the beginning Forigo paid considerable attention to safety issues so distribution systems have been greatly simplified to avoid operator mistakes, whilst maintaining a high level of technology. Moreover, new control systems and safety devices have been developed to prevent the leakage of product into the atmosphere. We believe that professional machines with high standards of safety, and well-educated workers, can be the key asset for the future of chemicals in agriculture".





CERTIS EUROPE

P.O. Box 1180, 3600 BD - Maarssen, The Netherlands
Safariweg 55, 3605 MA - Maarssen, The Netherlands

Tel. +31 346 290 600 - Fax. +31 346 290 601

E.mail: info@certiseurope.com - Website: www.certiseurope.com



CERTIS NETHERLANDS

P.O. Box 1180, 3600 BD - Maarssen, The Netherlands
Safariweg 55, 3605 MA - Maarssen, The Netherlands

Tel. +31 346 290 600 - Fax. +31 346 290 601

E.mail: info@certiseurope.nl - Website: www.certiseurope.nl



CERTIS UK and BCP Certis

1 Riverside - Granta Park - Great Abington
Cambridgeshire CB21 6AD - United Kingdom

Tel: +44 (0)845 373 0305 - Fax: +44 (0)1223 891210

E.mail: certis@certiseurope.co.uk - Website: www.certiseurope.co.uk



CERTIS BELGIUM

Bld Woluwedal, 60 - 1200 Brussels - Belgium

Tel. +32 2 331 38 94 - Fax. +32 2 331 38 60

E.mail: info@certiseurope.be - Website: www.certiseurope.be



CERTIS ITALY

Viale J.M.E. De Balaguer, 6 - 21047 Saronno (VA) - Italy

Tel. + 39 02.96.09.98.3 - Fax + 39 02.96.24.87.46

E.mail: info@certiseurope.it - Website: www.certiseurope.it



CERTIS FRANCE

5, Rue Galilée - 78280 Guyancourt - France

Tel. +33 1 34 91 90 00 - Fax. +33 1 34 91 90 09

E.mail: info@certiseurope.fr - Website: www.certiseurope.fr



CERTIS SPAIN

Elche Parque Empresarial (Bulevar Parque)
Calle Severo Ochoa,18 2º- 03203 - Alicante - Spain

Tel. +34 966 651 077 - Fax. +34 966 651 076

E.mail: certis@certiseurope.es - Website: www.certiseurope.es - www.ceroresiduos.es