

# FIGHTING BACK

*A new treatment is catching on as some tobacco beetles have developed resistance.*

By George Gay

This year will probably mark a watershed for the tobacco industry as it starts to move from phosphine fumigation to controlled atmosphere (CA) treatment for killing tobacco beetles in all their stages. The shift will probably start gradually since it requires some radical changes, and it will probably start in the most at-risk regions, such as Africa and the Indian subcontinent. But it is likely to gather pace quickly because, all in, tobacco beetles cost the industry an estimated \$800 million a year.

CA won't eliminate those costs but it will reduce them. And it has a lot of other credentials. It can be used with all types and varieties of tobacco, and it doesn't affect either their taste or color. And it offers, too, a safety advantage over phosphine fumigation, which is likely to appeal greatly to an industry under much external and internal scrutiny and pressure.

So why do we need another control system? Well, as Matt Mullen explained in a story in the September 2009 issue of *Tobacco Reporter*, some tobacco beetles have become resistant to phosphine. There is nothing inherently wrong with phosphine, but some beetles have been allowed to build up resistance to it through the application of sloppy or incomplete fumigations by tobacco-industry and other operators.

The impetus that will be given to the shift to CA treatment this year is likely to come from Coresta, which is expected to issue guidelines for a CA method, perhaps as early as April, when it will hold a pest control meeting in Cape Town, South Africa. But even if the guidelines are delayed, there seems to be a momentum building that will probably see some manufacturers embracing the new-to-tobacco technology using their own guidelines. In fact,

EcO2, which has much experience with CA in the fields of food commodities, consumer goods, furniture, artifacts, packaging and other materials, has already introduced the technology to tobacco in Indonesia.

That Indonesia is a starting point need not cause surprise. It is in hotter climates where tobacco beetles mostly thrive. But it is surprising, perhaps, that for the CA method to work on all of the stages of the beetle, it is necessary firstly to create an ideal environment for them. To avoid the ambient temperature's falling below 15 degrees C, which would cause the insects to lapse into diapause, or sleeping mode, the CA method raises the temperature without compromising the quality of the products in any way.

## The principle

So how does CA work? Nico Vroom, the sales manager with EcO2, told me that his company's method involved the construction of an airtight room or rooms, probably within a warehouse, into which the material to be treated is placed. The room, in which the temperature is increased to between 25 degrees C and 40 degrees C, depending on the product, is connected to an EcO2 converter that is able to change the oxygen in the room into nitrogen and flush that nitrogen back into the room until the oxygen content is reduced to about 0.5 percent. The product is held in this controlled atmosphere for a length of time that is calculated by EcO2 based on the temperature and the type of insects that are endemic to the product, both of which factors are determined after discussions with the client. In this way, all stages of the beetle are killed, the adults and larvae, which are relatively easy to deal with, as well as the eggs and pupae, which normally present more of a challenge. ►

EcO2 builds the required treatment rooms or, if necessary, the warehousing complete with treatment rooms, which may be financed by the client or by EcO2. In the latter case they are operated on a lease basis for a number of years and then made the subject of a building operation transfer.

But whatever is the method of financing the initial building, EcO2 retains control over the treatments and maintenance of the equipment. This is because it wants to ensure that treatments are always conducted properly and in full, something it guarantees with the issuance of a treatment certificate to the customer. "The EcO2 technique is now more of a brand name, and we want to protect our brand name," Vroom said.

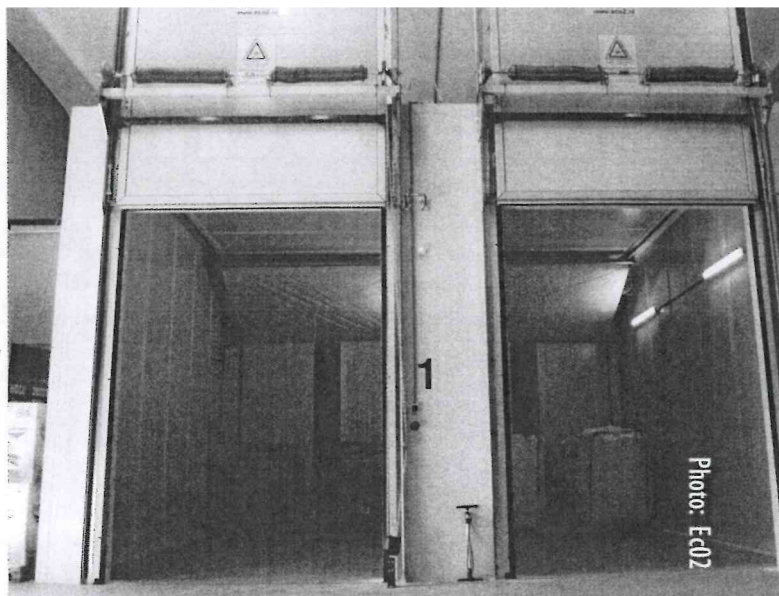
Control in this instance is exercised over the Internet 24 hours a day, seven days a week, once the client has indicated that it has a batch for treatment. And control means just that: It is possible for the company's control centers in the Netherlands and Vietnam to be able to give a treatment completion date in time for the client to arrange pickup and transport of the consignment. There is no need, as there sometimes is now, for containers to be sitting around waiting for fumigation to be completed and incurring demurrage charges.

### Considerable experience

One question that will inevitably arise is whether companies handling tobacco will be willing to cede treatment control to EcO2. Well, it might help that EcO2 has been around for some time. It was established in 1996 by three experts in fumigation and/or CA when the Dutch government requested that an alternative be found to methyl bromide, which was formerly used in the food and tobacco industries as a fumigant to kill stored-product insects. The Netherlands had a big stake in this issue. The port of Rotterdam was at that time the biggest port in the world, and produce from the four corners of the globe passed through it.

The company researched the issue until the end of 1999, at which point EcO2 was confident that it had a technique that worked and was ready to be launched as a commercial undertaking. Its first commercial project came at the beginning of 2000 when it installed a CA treatment facility with warehousing in the port of Rotterdam for one of the biggest international warehousing companies based in the Netherlands. And its next project was on a huge scale when, on behalf of the government of Rotterdam, which had fumigation and safety issues to deal with, it built a complete container fumigation center in the port. This project earned the company a Best Life Environment Project award from the European Commission.

At this point, EcO2 had been working mainly in the Netherlands and Belgium, but it became obvious that a lot of the problems—the need to re-fumigate or de-fumigate—were being imported from producing countries. So, in 2003, EcO2 struck out for Asia and other parts of the world. And now, with a new facility going into the



Controlled atmosphere treatment requires airtight rooms.

Philippines, it has a presence in 18 countries.

And while, as is mentioned above, EcO2 has only one facility built for tobacco in Indonesia; this facility comprises nine treatment rooms, and another nine are following.

In any case, talking about treatment rooms as being product-specific is somewhat misleading. Technically, there is nothing to stop food being treated in the same room—though at different times—as is used to treat furniture, and no reason why tobacco could not be treated in a room originally built for artifacts.

### Return on investment

One issue that might seem to work against CA is the fact that it sounds expensive, partly because of the initial investment in treatment rooms; so is it? Not according to Vroom, who told me that the system could in some instances prove cheaper than phosphine fumigation.

Vroom was a little reluctant to go into too many details, though he did let slip that ongoing R&D was leading his company toward a method that, in some localities, could allow initial investments to be reduced significantly.

But, in any case, it seems clear that because of the initial investment in CA, the price of treatment is going to come down as the amount of tobacco treated increases. And CA starts to look even better when one of the drivers behind the search for another treatment method is considered: the fact that phosphine treatments increasingly have to be repeated a number of times.

But this then raises the question of whether re-infestations can occur after CA treatment. "Because of this issue we write individual programs in which the requirements of each client can be presented and that render the risk of re-infestation as low as possible or nonexistent," said Vroom.

"And there is another issue. Since June we have become a member of the Control Union World Group, which has a presence in 70-80 countries and which, as part of its operations, deals with certification and control, collateral management and sustainability." TR