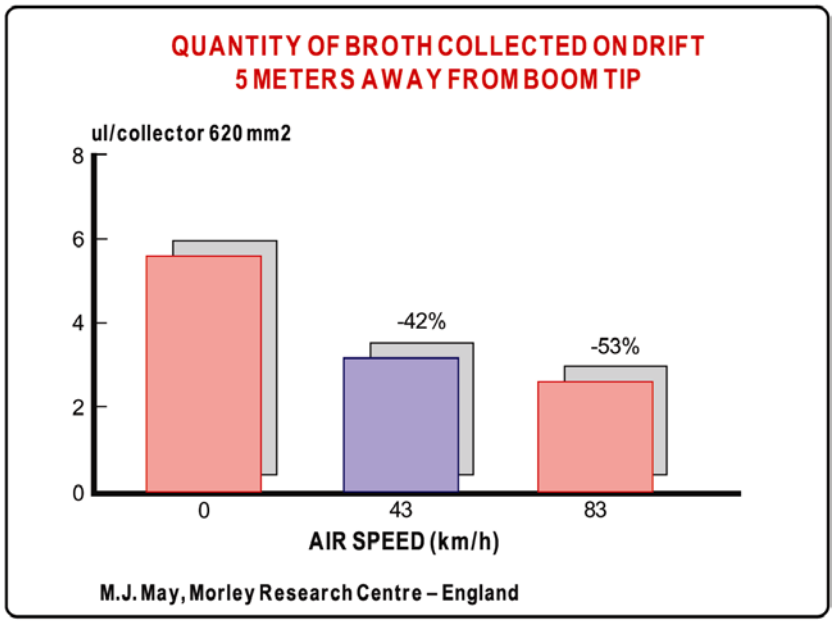
COLUMBIA VORTEX - ADVANTAGES

01–DRIFT REDUCTION

Columbia Vortex has the right air curtain system for preventing the sprayed product from being carried with the wind. This air curtain comes out from the nozzle side at about 90 km/h, being driven towards the target by the sprayed droplets. A work developed by M.J. May with a similar equipment at the Morley Research Center in England (1991), has shown a drift reduction of about 50% by using the sleeve boom sprayer with air curtains.

This work carried out by May shows that the collecting papers, placed at 5 meters away from the location where the sprayer sleeve boom tip has passed through, received 42% less broth when the fan generating the air curtain has been actuated at 43 km/h, and received 53% less broth (drift) when the fan has been actuated for generating an air curtain at 83 km/h. In another work from the same researcher, the vented boom system was able to reduce the drift up to 84%



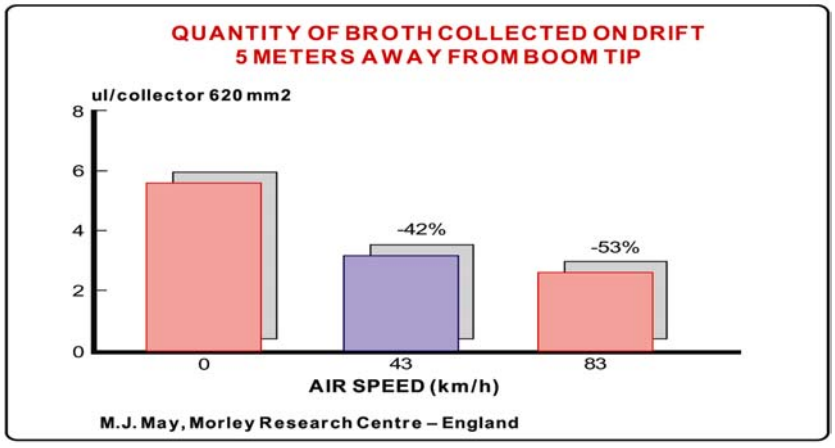
02-USING A SMALLER WATER VOLUME

The application with air assistance allows the use of low flow nozzles with small droplets and great safety. This fact distinguishes even more when low flow spreading nozzles are used. With the air curtain it is possible to use spreading-type nozzles with a flow of 300 to 500 ml/min and a small risk of drift. By using air curtain sprayers, the use of spraying volumes of 50 to 100 l/ht will be each time more and more common.

03-LARGER DAILY PRODUCTION

The use of small water volumes considerably increases the spraying ability of the equipment.

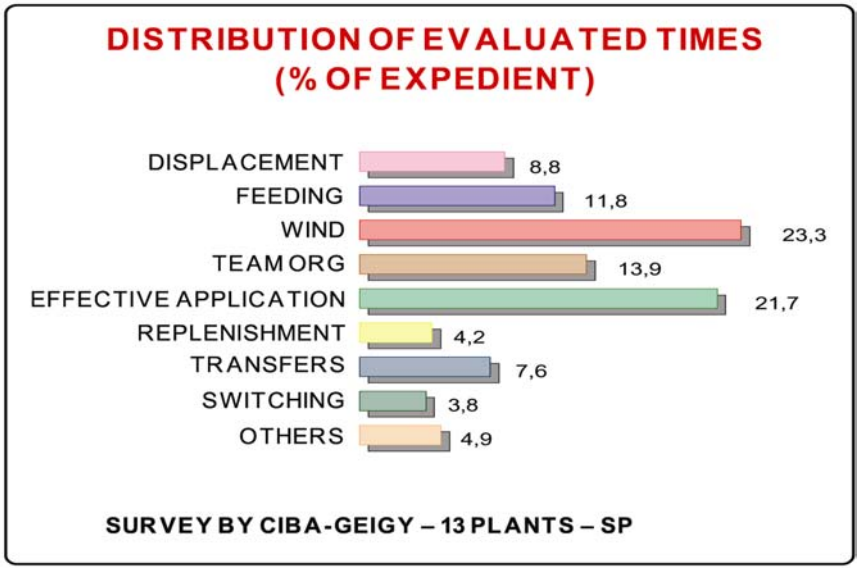
The following chart shows an increase of about 73% in the sprayer daily production, when moving from 400 l/ht to 50 l/ht in spraying volume, thus increasing from 34.6 to 59.7 ht/day sprayed. Using the air curtain is essential for working with a spraying volume below 100 l/ht.



04-LESS NUMBER OF STOPS DUE TO THE WIND

In a conventional spraying operation, when the wind reaches speeds of about 15 km/h the sprayer must be stopped, since the spraying quality will be affected. With an air curtain sprayer, it is possible to spray with winds up to 35 km/h without any significant drift (source: Fundação ABC).

A study developed by Ciba-Geigy, following up spraying operations in thirteen plants in the State of São Paulo for a month, has shown that during the period in which they should be spraying, 23.3% of the time the sprayers remained still due to the excessive winds. Therefore, these plants must have a grater number of sprayers in order to accomplish the pest and noxious weed control on time. The Columbia Vortex could probably spray it all over the time, without any stops.



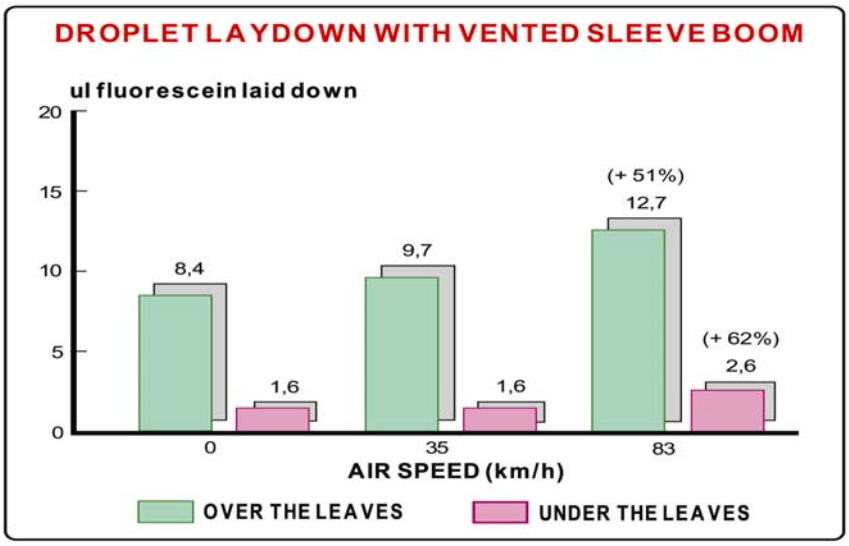
05-LESS REPLENISHMENT TIMES

The possibility of working with less water volume increases the daily equipment production, thus reducing the number of replenishments needed and making the spraying operation easier.

06-GREATER PESTICIDE PENETRATION INTO THE CULTURE

The wind generated by the Columbia Vortex drives the droplets towards the culture, improving much better the droplet laydown on the culture.

The work of Dr. M.J. May, from the Morley Research Centre, England, has shown a 51% increase in the broth laydown over the red beet leaves, when the vented sleeve boom system was used. At the lower face of the leaves, the result was even better: 62% more droplets were laid down on the leaf when using this system.



07-REDUCTION IN PESTICIDE USE

Due to the application on right time (not depending when the wind stops or not) and with more quality, it is possible to reduce the pesticide quantity per area unit.

May has achieved a good noxious weed control (post-emerging herbicides) with a ½ dose in relation to the conventional system. With the complete dosage, the control effectiveness of the sleeve boom with air curtain has been much better than in the conventional system. May gave the following explanation about it:

"Better penetration and better coverage due to the air flow combination on and around the plant, besides the plant agitation effect, which exposes more leaf area to spraying. In this way, the spraying action reaches better the most vulnerable area of the plants, which is the leaf axis."

Other works developed by the "Home Grow Cereal" of Scotland (1991), showed that when applying 1/3 of the ALLY herbicide (methysulforum methyl) dosage with air assisted sleeve boom, the same control of the application with the complete dosage with airless sleeve boom has been obtained. The application of 1/3 of the dosage with airless sleeve boom did not offer a satisfactory control.

The explanation is that the air sleeve boom technique substitutes the air involving the plant by an air saturated with chemicals.

08-LESS ENVIRONMENTAL CONTAMINATION

By applying more pesticide on the target, by reducing much the drift and making the work possible with less concentrated dosages, the Columbia Vortex protects the environment by reducing much the possibility of contaminating the areas near the culture.

09-LESS CONTAMINATION RISK TO THE TRACTOR OPERATOR

As it protects the environment, Columbia Vortex also reduces the risk of contaminating the tractor operator. This without counting the devices Vortex has for increasing the operator's safety even more, like the package washer, the pesticide incorporator and the water tank for washing the hands.

10-USE OF TRACTOR HIGHER SPEEDS

11-ELIMITATION OF THE UMBRELLA EFFECT

The pesticide-loaded air curtain causes a whirlpool that reaches all the noxious weeds, even those that remain "hidden" under other weeds, thus eliminating the umbrella effect, which many times is responsible for the low efficiency in the noxious weed control.

12-BETTER CONTROL OF PESTS, DISEASES AND NOXIOUS WEEDS

The improvement in laying down the chemical product on the target, together with the smaller product loss per drift and with the umbrella effect elimination, will cause a better control of pests, diseases and noxious weeds, mostly even with less pesticide dosages.

13-BETTER COST-BENEFIT RATIO

The possibility of using a smaller pesticide dosage with the same effectiveness, a greater daily production capability, less number of replenishments, a better quality in pesticide application and also the possibility of accomplishing a greater number of applications due to the greater application effectiveness, will result in a better cost/benefit ratio.

Should you have any suggestion, question or complaint, please contact the SERVIÇO DE ATENDIMENTO AO CLIENTE (Customer Assistance Service):
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