A banana crown wrapping film to prevent in-transit decay

Pesticide residues in and on produce is a concern amongst consumers and retailers. “In the case of bananas, all conventional bananas are treated just before packing with fungicides such as thiabendazole, imazalil or azoxystrobin or a cocktail of two or three of these”, says Frans Wielemaker (Ex-Director of Agricultural Research at Dole Fresh Fruit International). “and these fungicides are much needed as the crown is in fact a huge wound which needs protection to avoid rot and mold development”, he says.

Instead of applying these conventional fungicides or organic biocides like citrus seed extract —which is not very effective—, Frans, together with his business partner Luis Fernando Monge, is now promoting a new solution to banana companies which until recently had no answer to confront the residue issue which, for good reasons, very much concerns consumers and retailers alike.

Luis Fernando explains, “this effective method preserves the crowns of bananas by means of the application of a moisture proof self-sealing wrap, which we have named ParaSeal, to each individual banana crown” . And giving a more precise description, **“it is a paraffin-based semi-transparent stretchable plastic which comes as a continuous strip on a roll”.** Then he describes the process: **“this wrap protects the cut crown and maintains the turgor of the tissue maintaining the crown looking fresh”.** “The secret behind it all is simple, the ParaSeal wrap deprives possible rot and mold spores from oxygen, thus creating a miniature modified atmosphere environment around each crown. **Basically, it is a physical barrier that keeps the decay at bay”.** It has become the standard treatment for organic or bio-bananas now shipped in huge quantities to the US and EU.

This ParaSeal wrap film marketed by TRANSASTRA is, the two entrepreneurs reiterate, **“the only product of its kind in the market today officially certified organic by an accredited certification organization” (CU Certifiers)** complying with the US and EU organic standards as being compatible and made with components allowed to come-in-contact-with organic food”. It is also allowed under Japanese MAFF/JAS legislation.

Organic or bio-bananas sent to distant markets for sure use the ParaSeal crown wrap treatment, but also when the distance from the arrival port to the banana ripening facility and on to the final supermarket distribution center takes logistically more than two weeks”, Luis continuous. “Also, often, due to higher inventory or lower demand, a banana load needs to be held-over from one week to the next, and you don’t want to see them go to waste”.

“there exists a simply method to conserve organic bananas and there is no good reason to continue using pesticides on conventional bananas. All retailers can go to ZERO residues on bananas”. He pinpoints, **“on bananas sent from South America to Japan, in which market there are much more restrictions concerning post-harvest use of fungicides (ironically called ‘Food Additives’), ParaSeal is being used commercially now”.** Frans inserts that “this is especially appreciated by the distribution centers in Japan as they don’t need to ‘refresh’ the crown, which saves an enormous amount of expensive labor”. An additional advantage of ParaSeal is that , when applied early, it seals the latex flow of the crown and prevents dehydration of the crowns’ surface area. This has shown to give less weight loss at arrival of over one pound less per 40 pound box. “This actually pays for the ParaSeal wrap”, it is reiterated.

"Antracnose and Chalara infections are not prevented by this ParaSeal wrap but the cause and the cure, is not solved with synthetic fungicides either. Several agricultural practices and better control over the packing process play an important role. Control of the time that the fruit is actually in the water baths and the duration of the latex flow is vital to prevent Chalara", the researcher indicates.

Luis mentions that "the question has been raised whether consumers will accept the paraffin plastic wrapped over the banana crown as the alternative option". He says, "they have, and they probably would do more so, if they would become aware of the fact that the wrap replaces chemicals". Also, **"it is a given already that over the years, the ParaSeal wrap on the crowns of bananas has become the way for consumers to recognize bananas which have not needed a treatment with synthetic chemicals".** ParaSeal wrap application is now being adopted by shippers of conventional bananas to suit the requirements of retailers which are under pressure from consumer groups or simply take the correct decision.

Luis continues saying that "ParaSeal is the most environmentally friendly alternative available at this moment to preserve the green-life, shelf-life and kitchen-table-life of bananas. It not only –totally— eliminates the possibility of a postharvest pesticide residue on the final product the consumer touches and then eats, it also eliminates exposure of the packers of the bananas at the banana farms to pesticides, and the possible runoff of chemicals in to the environment".

In terms of the concerns that consumers may have about the wrap in the environment, Frans explains that, **"ParaSeal is a food-grade paraffin based plastic film. The paraffin – the basic component of candles— will decompose in the compost bin and the plastic component of the film will disintegrate but it is not biodegradable.** If consumers compost their banana peels, it is best to remove the film before composting or while turning the compost bin". It should be mentioned that the amount of ParaSeal used on each banana crown is mall (10 sq cm per crown), which represents much less plastic compared with the plastic stickers, the plastic tape or plastic bag often used to package a banana cluster. Yes, of course "all these plastics should hopefully soon be replaced with truly biodegradable films. "We are looking at an alternative to that, too".

ParaSeal marketed by TRANSASTRA comes in rolls of 2 Inch in width and 250 Ft long. It is aseptically produced at a high temperature and has a glossy paper lining. When carefully pulled, it extends easily to 5 times its length and width and has 'memory' when let loose, shrinking back again. Luis explains again that "this feature makes the film 'grab' the banana crown and tightens around it and does not come loose".

The modern manufacturing process of ParaSeal at the factory in China is monitored to comply with the high set quality control standards and checked to conformity by SGS Certifiers. Furthermore, each roll of ParaSeal has a barcode sticker attached to its core for easy traceability if ever a complaint would occur. As a last remark Luis Fernando reminds us that; **"ParaSeal has the best performance and is also the most economical alternative compared with any other film marketed by the competition, and we as TRANSASTRA actually do give technical assistance in the field and organize workshops for farmers together with our distributors. We teach farmers how to use and not to waste any of the film".**

In conclusion,

- No synthetic chemical residues.
- Preserves the crown's freshness.
- Prevents latex exudation from crown.
- Eliminates worker exposure to post-harvest fungicides.
- Eliminates the cost for protective masks, apron and gloves.
- Eliminates contamination of packing plant with post-harvest fungicides.
- Prevents chemical residue effluents reaching the environment.

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