

MOULDING THE FUTURE

Working with farmers to create new harvest bins

By Nikki van Coller | Photo's Michel Dei-Cont

What does a wheelie bin, a car bumper and a harvest bin have in common? They're all manufactured by means of a plastic injection moulding process. And TEGO Plastics, a new subsidiary of the Kaap Agri group, manufactures large format harvest and storage bins for the agricultural sector using one of the largest injection moulding machines ever to be commissioned in South Africa. After visiting the manufacturing facility in Brackenfell, Western Cape, and seeing the mammoth machines in action, it's easy to see why there's so much excitement about this new venture.



1.

TEGO Plastics represents an investment of over R90 million in Kaap Agri's manufacturing capabilities. "We are very excited about the launch of this facility. It is in line with our strategy to diversify our manufactured product range and offering more value to our agricultural customer base," says Sean Walsh, Chief Executive Officer of the Kaap Agri group.

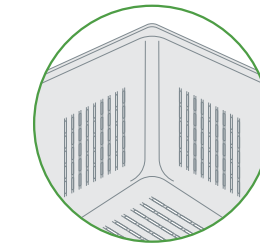
Edward Smith, Executive Manager of TEGO, is leading the operations at Kaap Agri's new manufacturing plant. With 22 years' experience in the industry, and a vast knowledge of polymers and its applications, Edward has a passion for plastics. "But not just any plastics," he corrects with a smile, "injection moulded plastics".

In layman's terms, injection moulding is the process where molten material (in this case plastic) is injected into a mould. This hardens into a shape that has conformed to the contours of the mould.

TEGO's first product launched is the TEGO Bulk Bin – large-format harvest and storage bins for the agricultural sector. These bins are storage containers used to hold apples, oranges, and other fruits and vegetables from the harvest fields to the packhouses.



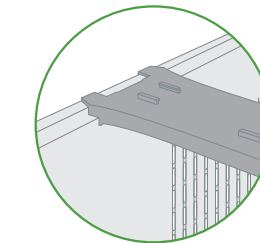
1. The recently launched TEGO Bulk Bin offers more choice to producers.
2. Edward Smith, Executive Manager of TEGO.
3. TEGO bins are easily stacked and moved with forklift and standard pallet jack.



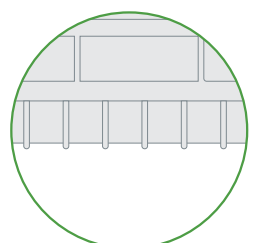
Smooth inside design for reduced damage to fruit.



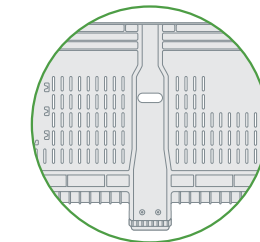
Multiple customer branding options.



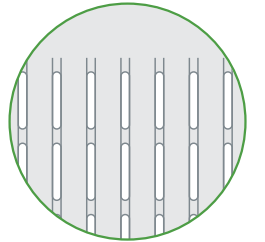
Designed for transport support brace.



90mm ground clearance for pallet jack compatibility.



Centre support structure available on all bin configurations.



Unique drenching slots for superior draining.

Two bins on offer:

- **TEGO Premium 2-Skid Bin:** Accessible from all 4 sides with a forklift and from 2 sides with a standard pallet jack.
- **TEGO General Purpose 8-Foot Bin:** Accessible from all 4 sides with both a forklift and standard pallet jack. This 8-foot bin is available on special order only.

"The TEGO Bulk Bin has unique design features that takes into account the specific requirements of agricultural end-users who need cost-effective, food grade, and durable bins that perform well under different environmental conditions in various locations – under the blazing sun in an orchard, on a transport truck, in cold storage or in a packhouse," says Sean.

TEGO was started with one objective in mind: to help address the challenges farmers were facing with bins and transportation and to ultimately help them avoid damage and thereby positively impact their profits.

It may not be obvious, but the transportation of fruit or vegetables from the field to the packhouse is possibly the most important part of the farming process. "Think about it," explains Edward, "the difference between losing 6% and losing 10% of your produce due to bruising or heat damage is huge, and it translates to a big difference on your bottom line."

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Even the product's name carries this promise. "Tego" is the Latin word for protect.



Some specific issues farmers face, include damage due to limited air flow, bruising because of the shape of the inside of the bins, sun damage because of the type of plastic materials used in manufacturing as well as compatibility issues when moving the bins with forklifts and pallet jacks. Added to this, a strained availability of new bins means that farmers are resorting to using old bins that could potentially damage the produce.

TEGO Plastics sought to address each of these concerns and according to Edward, it wasn't easy. "From inception," he says, "the goal was to ensure the product really made a difference; that we got it right." He explains that there were several decisions made along the way of a three-year journey that have ensured the TEGO Bulk Bin does what they wanted it to do: to improve profitability by being "better on the ground".

"KaaP Agri provides the ideal platform from which to launch such a product, not least of all because of its already-established infrastructure and the relationships built up with farmers over more than a century."

One such decision was to use high-density polyethylene (HDPE), rather than polypropylene. HDPE can better withstand the cold and the heat, and offers superior protection against harmful UV and infra-red rays. "It's simply a better material, although known in the industry to be more difficult and expensive to work with. We haven't always chosen the easy route," says Edward, "but we also chose the best route."



The same applied when it came to finding the right machines for the job. A lot of time was spent researching various international manufacturers which culminated in TEGO securing the purchase of two machines – one for the moulding of the bin, and one for the feet. The "bin machine" weighs a whopping 300 tons, while the smaller "foot machine" weighs 200 tons! Each needed a special reinforced foundation to prevent the factory floor from collapsing and were imported in parts and assembled over an intense 6-week period.

Another important decision made by TEGO and KaaP Agri was to work with producers during the product trial process – consulting farmers, asking them to test sample bins, attending trial tests on farms and listening to their feedback.

Edward readily admits that there were unexpected pitfalls, one being the initial design of the eight feet general purpose bin option. This design was intended to allow lifting and transporting from all sides – something that would speed up several processes. In theory, the design was flawless. But once on the conveyer belt in certain packhouses, it became evident that the bin's smaller foot elements were not 100% compatible with the conveyer belt systems. Further design and testing resulted in a bin, which now works with the conveyer belts, without losing the pallet jack and forklift ease-of-use the team wanted to achieve. This is called the TEGO Premium Bin, which is a 4-way forklift and a 2-way standard trolley jack bin. The TEGO General Purpose Bin is also still available but only by order if compatible to the requirements of the customer.

"As we are learning about our design", says Edward, "we are adapting and making changes to make sure that we are truly solving all the issues experienced."

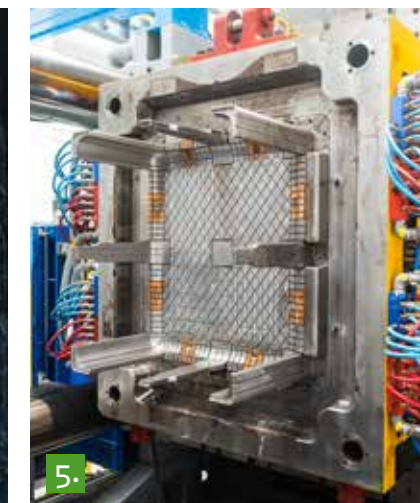
Other design features of the TEGO bin include a smoother inside to help eliminate bruising, and unique drenching slots to ensure better ventilation and draining. Customers will be happy to know that the footprint of the TEGO Bulk Bin is compatible with the existing plastic and wooden bins in the market, and therefore they integrate seamlessly with their existing stock.

The standard bin colours – sage green and sandy beige – are also more resistant to UV and infra-red rays. And the bin offers several branding options where customer branding can be applied – which also assists with identification.

"We look forward to offering a truly superior product that addresses all the farmers' concerns and makes a real difference to their operations and profit margins."

Customers can also have the bins manufactured in their choice of colour, although Edward points out that darker and brighter colours fade faster and are less resistant to infra-red rays. "With the sun's rays pounding down onto the produce, the bin colour can cause the temperature to go up by a few degrees – a real issue for farmers," he says, adding that his team will always work along with farmers to find out what their needs are and which produce they work with to ensure that the bins are perfect for the task.

Another issue faced by producers is that both produce and bin can be damaged in transit on trucks because of the way they are strapped together or strapped to the truck. With customer needs top of mind, a support brace to combat these challenges was also designed. Edward explains that the brace prevents damage to the product within the bin, as well as the bin itself, by preventing the bin sides from warping when tied to the transportation truck.



Edward takes me to the factory floor and I am astounded by the sheer magnitude of the two machines and the state-of-the-art facility. I witness the manufacturing of a few bins and feet. My favourite part is the robotic arm, which removes the bin from the mould and places it on a scale (the weight is used as a quick indication of whether there are any issues with the moulding) and then onto the conveyer belt.

KaaP Agri's expansion of its manufacturing product range makes perfect sense, Sean explains. "KaaP Agri provides the ideal platform from which to launch such a product, not least of all because of its already-established infrastructure and the relationships built up with farmers over more than a century." TEGO Bulk Bins are exclusively available from KaaP Agri's network of Pakmark and Agrimark stores.

"We may have only just begun operating, but with this kind of backing we already feel like seasoned professionals," says Edward. "We look forward to offering a truly superior product that addresses all the farmers' concerns and makes a real difference to their operations and profit margins." ✓

1. The high-precision injection moulding machines.
2. A higher base prevents bruising when stacked.
3. Farmers are already putting the bins to work in their orchards.
4. High-precision moulding ensures each bin is identical.
5. The moulding process takes around 180 seconds per bin.
6. The TEGO factory is situated in Brackenfell, Cape Town.



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