

EARTH BUDDY®

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Earth Buddy® was rapidly becoming the hit novelty item of the summer. Although it was only mid-July, Seiger Marketing had already moved and expanded its Earth Buddy division's factory and warehouse twice since production began in mid-April. Even so, current production levels were straining the physical limits of its latest facility in Toronto, Ontario.

Nothing was certain, however, and Anton Rabie and Ronnen Harary, recent Ivey Business School graduates and Earth Buddy's co-owners, were reluctant to give their production director and business school classmate, Ben Varadi, any production advice except: "Remain flexible. We could get an order for 100,000 units, but if the order doesn't arrive, we would have to put the

workforce on hold. We can't afford to carry large inventories." Against this background of uncertainty, Ben was looking for ways to increase his capacity and stay flexible at a minimum of expense.

THE PRODUCT

When the Earth Buddies' owners removed them from their boxes, they found a bald, but cute, humanlike head about eight centimetres in diameter. After soaking in water and sitting in a moist environment for a few days, the Earth Buddy sprouted a beautiful head of green hair. See Exhibit 1 for the before and after look. The

Care for your Earth Buddy®



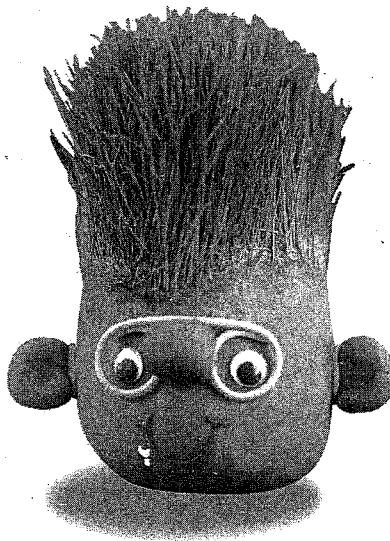
Submerge your Earth Buddy® in a bowl until he sinks (approx. 2-3 min.)

Place Earth Buddy® in a dish, and put in a warm, sunny place

Keep water in the dish at all times, and Earth Buddy's grass hair will sprout after 7 to 10 days

Trim Earth Buddy's hair, style, carefully mold the face, and treat your Earth Buddy® with love and care

Have fun!



owner's creativity could be expressed through the hair's styling. Earth Buddy sales had originally been through Toronto-area flower shops and gift stores, but as the product's wide appeal began to be realized, distribution spread nationally through stores such as K-Mart, Toys R Us, and Wal-Mart. By mid-July, over 100,000 units had been sold in Canada, and exports had begun to the United States.

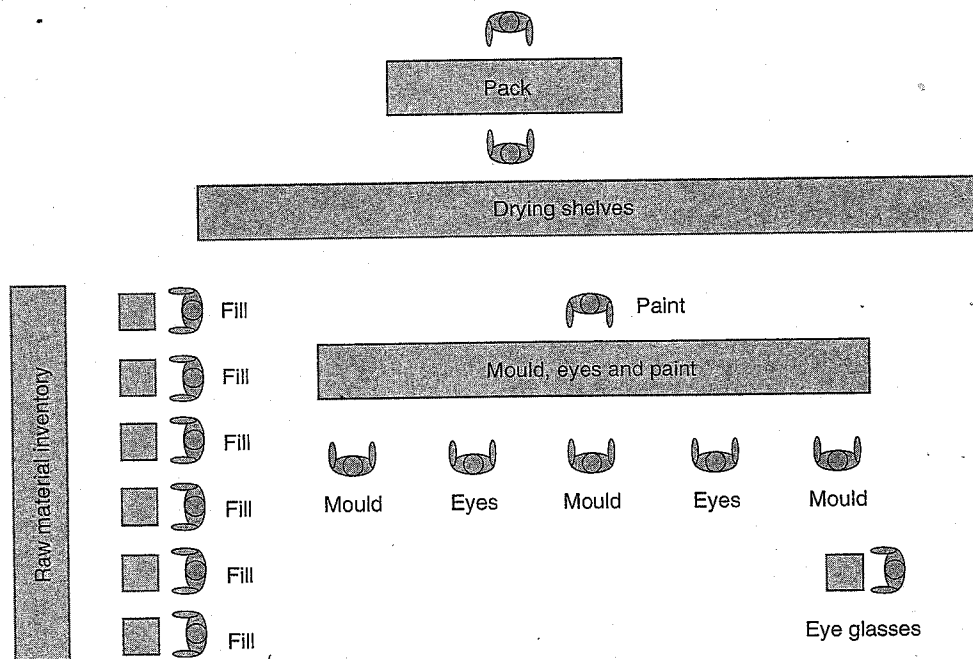
THE PROCESS

Earth Buddies were produced in a hybrid batch-flow process illustrated in Exhibit 2. Six filling-machine operators working in parallel produced the basic rounded shapes by filling pieces of nylon stocking with sawdust and grass seed. The operators placed the heads in plastic tote boxes that held batches of about 25 heads. In another batch operation, an operator shaped the Earth Buddies' eye glasses by wrapping plastic-coated wire around a simple

jig composed of two short, vertically-mounted dowels.

The remainder of the process was a worker-paced flow. Three moulding operators removed the heads from the tote boxes, and formed the nose and ears with the help of elastic bands. Next, two people working between the moulders placed the previously-formed eye glasses over the nose, and glued small plastic eyes inside the rims. Each shaped and assembled Earth Buddy was placed in a bin for the painter, who fashioned a red mouth with fabric paint before placing the head on shelving to dry. Drying usually took about five hours, but could take as long as seven hours during humid summer days. After drying, two packers placed the Earth Buddies in boxes, and then into cartons ready for shipment.

Work in process inventory (WIP) prior to drying was not large. Typically about 250 heads were at various stages of completion between filling and painting, but sometimes WIP seemed to grow much larger.



In an effort to analyse his capacities, Ben and his day supervisor, Bob Wakelam, estimated the time it took an operator to process and move an Earth Buddy through each step. The times were: filling—1.5 minutes; moulding—0.8 minutes; eyes—0.4 minutes; eye glass fabrication—0.2 minutes; painting—0.25 minutes; and packing—0.33

minutes. After allowing for unavoidable delays and rest periods, Ben figured that he could count on seven hours of production from each eight-hour shift.

With weather forecasts calling for more hot, humid summer days, Ben wondered how his production capacity and WIP levels might be affected.