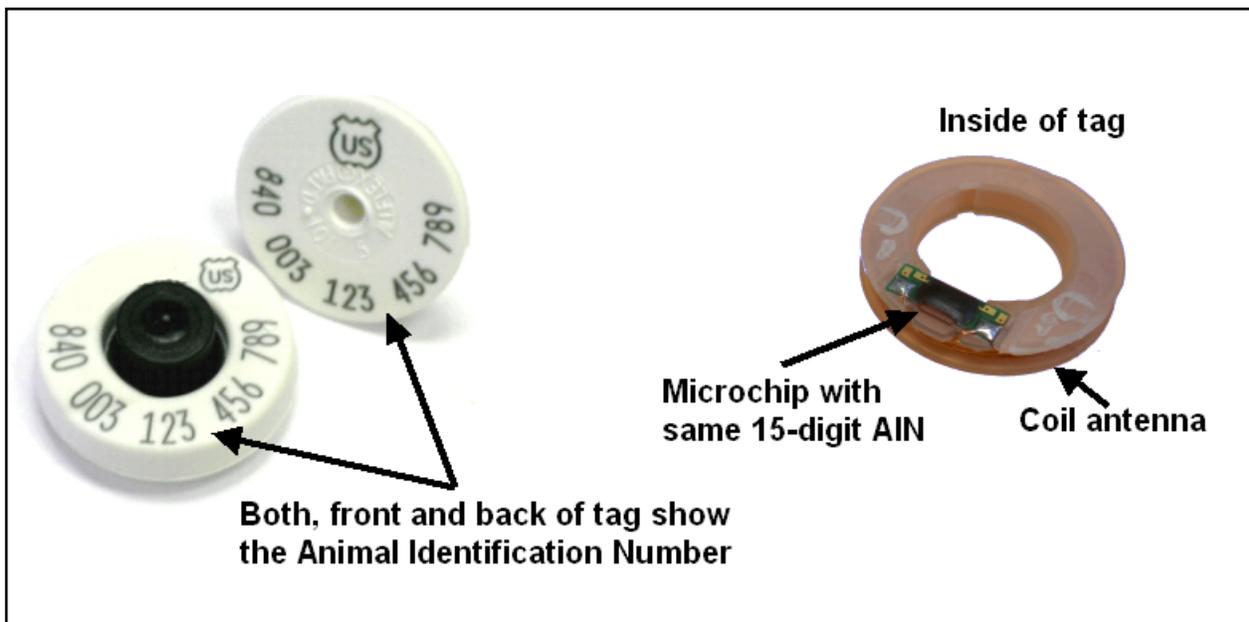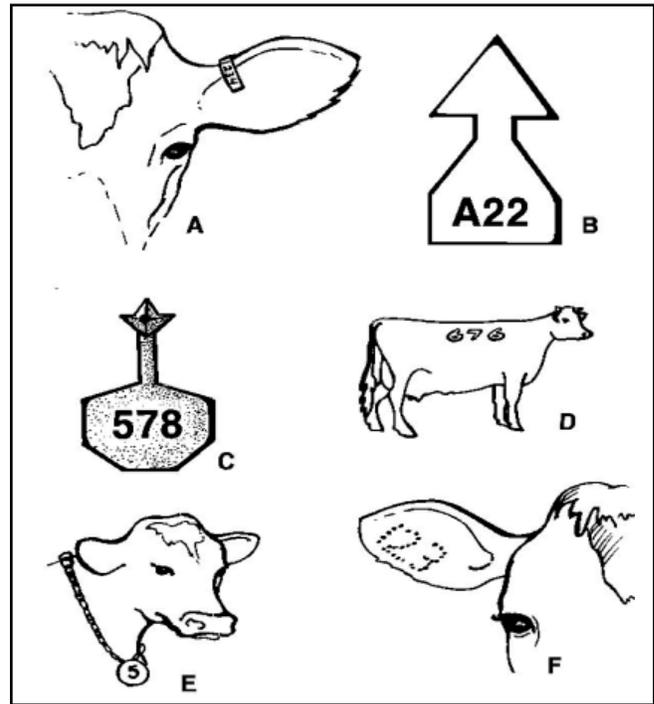## Not Your Father's ID

Has anyone ever asked you what the most important piece of data is on your dairy? Likely the answers to this question may include somatic cell counts, daily milk production, when to breed a cow, or any other one of the many bits of information we gather about our cows. When you come down to it though, accurate and easily made identification of a cow is where it all begins. No decision we make with cows is of value if we are not applying it to the right one.

Dairying has changed like many other businesses and the ability to know cows by color, shape, and size is more difficult than in the past. Over the years we have used various methods to help identify cows that seemed just the ticket for that time and place. Ear tattoos, ear tags, leg bands, neck chains, and branding have all made way into our dairy management systems. Some of these may add speed to finding cows but for all intents and purposes they rely on our ability to see some visible ID of the cow.

New identification methods are finding their ways onto our farms and the fastest growing one appears to be Radio Frequency Identification or RFID. Electronic identification of cattle up to now has been primarily by use of neck dangles or leg bands containing some kind of transmitter. Cost is probably the biggest barrier to wider use of these electronic devices with the larger farms making up most of the group that use electronic ID of cattle. RFID has the potential of changing ID methods on farms because the cost largely remains the same for the data reader mechanisms but the cost of outfitting each cow with an ID device is dramatically reduced.

RFID tags themselves are passive type electronic devices meaning that they store no power for transmission. Longer life can be realized when no diminishable power source is present. They are identification programmed electronic chips that are energized by a transmitter (reader) and once energized, send the information contained (ID number) back to the reader and stored or transmitted to a computer.

Both, front and back of tag show the Animal Identification Number

Inside of tag

Microchip with same 15-digit AIN

Coil antenna

Management potential on and off dairy farms is enormous. RFID usage can help increase the chance of animal identification for all these applications beyond the 85-90% that is typically observed with visible ID systems We can break these uses down into three primary applications.

Benefits to consider when using RFID on dairies are numerous. Some of these are improved injection compliance for synchronization programs, vaccination protocols and rBST usage. Applying the right procedure on the right cow is critical to management success. Labor efficiency and stricter management controls are seen in many herds. Correct animal

Work Lists	Data Collection	Animal Handling
Dry off	Milk recording	Parlor identification
To calve	Culturing	Sort gates
To breed	Blood sampling	Scales
To treat	Classifications	Heat detection devices
Vaccination	Field trials	
Bst shots	Inventories	
To move	Animal observations	

inventories, and improved hospital and treatment pen management becomes a possibility. While realizing these benefits we may also move towards less animal stress in the form of less time away from the primary functions of eating, drinking, and resting needed for optimal production.

Components of an RFID system are reasonably simple. Tags, reader, and data collectors make up the part of the system.

Tags
- Chip and copper coil antennae
- Passive devices where they get energy from reader to transmit data
- Low frequency
- Limit to read range
- No battery to run down

Reader
- Antenna
- Scanner or transceiver
- Stationary read range of 25 inches
- Mobile or handheld units read range 2-12 inches
- Concern in read integrity

Data Collector
- Laptops, handhelds, scale heads
- Bluetooth, wi-fi connection to reader
- Software

It would not be fair to go on as if there were no challenges using RFID in a management scheme. First and foremost may be that not all dairies utilize headlocks. When headlocks are used we often have more cows than headlocks and of course headlocks are one of the many pieces of equipment that need to be maintained. Management rails are also used with smaller groups that need to be changed often. One irony we also find when using RFID for management is that headlocks are most used by cows during feeding which also happens to be a poorer choice for performing procedures on the dairy. Of course this is no different than cattle handling using visible ID. The big advantage of RFID is the elimination of the errors caused by misreading of a tag. When these challenges are met RFID can have many benefits.

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Other challenges that are more easily overcome are lack of computer skills, and durability of handheld computer devices.

The need for ID to be at the end of the cow where many of the management routines take place is currently addressed by modifying the RFID technology to chip implants similar to those used in the pet industry. This allows workers to ID cows and perform the procedure all from the back of the cow via a chip under the hide in the hock area.

Opportunities for RFID usage are likely to grow in the dairy industry. A national animal ID database for animal movement tracking remains voluntary at this point. Management needs will likely drive more dairies to adopt RFID into their management. At the forefront of these opportunities lies the correct and more complete identification of animals for compliance to management practices. Data integrity can be improved while we tend to manage larger numbers of cows at facilities. Labor efficiency is gained by properly identifying cows for work lists the first time we observe them. Affordability of this technology for all size dairies improves steadily. More data can be recorded without taxing the limit on time to do routine chores.

Increased adaptation of management tools on the dairy such as scales, milk-recording devices, and cattle handling equipment like sort gates will help us make better informed decisions.
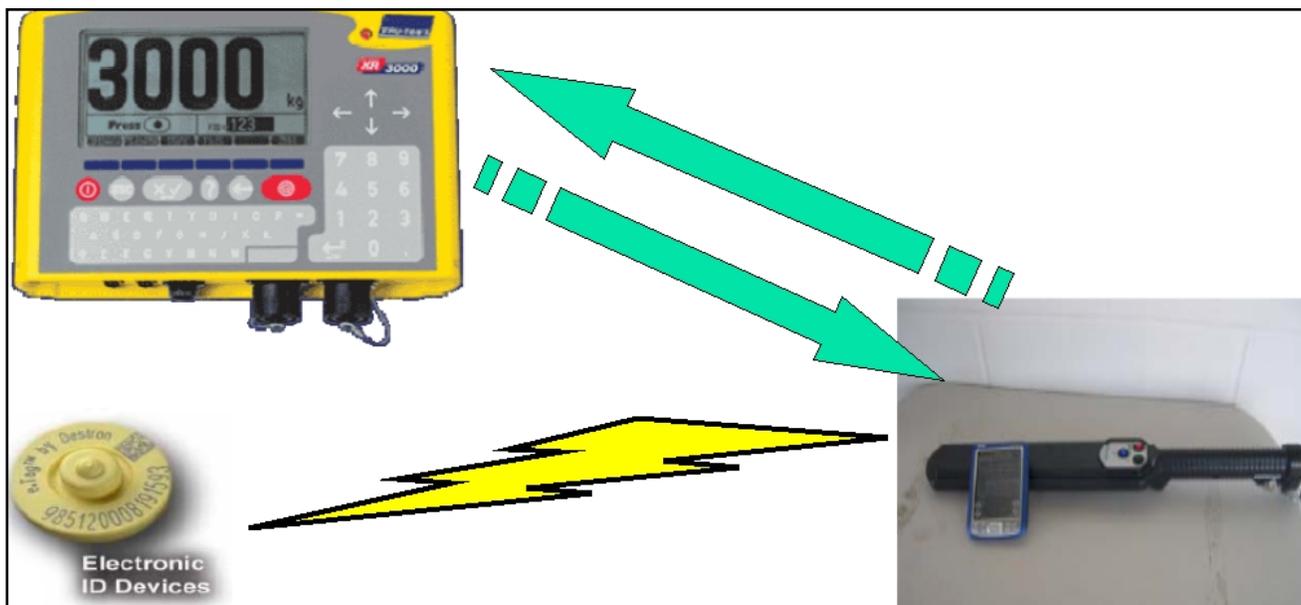
Using this new technology without adding additional stress or even
reducing existing stress on the cows makes RFID just a bit more than
"Your Father's ID".