**Embracing Handheld Computers and RFID Technology to Enhance Herd Management**

**Integration of RFID Tools Since 2001**
Pocket DHI-Plus and RFID

Introduced in 2006

Pocket DHI-Plus

- Convenient access to cow and heifer records
- Record events at cow side as they occur
- Used with or without RFID
**Typical RFID System**

- RFID Ear Tags
- RFID Reader
- Pocket PC in a protective case
- Pocket DHI-Plus Software
- Ear Phone

**Herd Exam Using RFID and Pocket DHI-Plus**

- Preloaded the list of cows to examine
- Scans the cow
- Hears the reason for examination and relays it to the person examining the cows:
  - Open
  - P1 (1st Preg Check) and Days Since Bred
  - P2 (2nd Preg Check) and Days Since Bred
  - Skip (Not on List)

(The users select which audio prompts are played.)
Herd Exam Using RFID and Pocket DHI-Plus

- Cow record is displayed on the Pocket-PC
- User can move ahead and find the next cow to examine while the last cow is being examined.

Herd Exam Using RFID and Pocket DHI-Plus

- Record the results of examination of the last cow
Feedback from Dairy Producers using RFID

1,049 Cow Dairy in California

- Benefits on Vet Day:
  - Labor Savings (3 man hours per week):
    - Eliminated pre-marking the cows (2 men for 1 hour)
    - Eliminated data entry after the Vet Check (1 hour)
  - Miss fewer cows:
    - Identifies the cows even when they are in the wrong pen
    - In the past they would miss 6 or 7 cows
    - Now they only miss about 1 cow
1,049 Cow Dairy in California

- Benefits on Vet Day:
  - Make better decisions by having the complete animal history available on the Pocket PC
  - More accurate records

3,434 Cow Dairy in Arizona

- Benefits on Herd Examination Day:
  - Eliminate transposition errors when:
    - Recording examination results on paper
    - Typing the data on the office computer
  - Labor savings:
    - Use two people rather than three
3,434 Cow Dairy in Arizona

- Benefits in a Systematic Breeding Program:
  - Cows are not locked up as long
  - Personnel scan the animals about as fast as they walk
  - Changed to a daily injection and breeding schedule:
    - Breed 8 cows daily rather than 56 on one day a week
    - Personnel are not as worn out
  - Improved Reproduction Performance
  - Inventory verification happens at the same time

Systematic Breeding Program
Using RFID and Pocket DHI-Plus

Herdsmen hear:
- LUT
- GnRH
- Skip (Not on List)

Events are recorded automatically
Scanned 57 cows and gave two injections in two minutes.

Compliance Verification

- Date and time of RFID scans / injections
- List the animals missed
Additional Benefits at the 3,434 Cow Dairy in Arizona

- Eliminated one full-time labor position
- Unexpected benefits:
  - Able to work the cows in the dark (cooler)
  - Cows spend less time locked-up in the heat
- Easier to work in the rain:
  - Ink runs on the printed reports
  - Paper reports turn to mush
  - All you need is a weather-proof vet

4290 Cow Dairy in California

- PreSynch shots list
- Uses 2 people for accountability
- Use of RFID and handheld more accurate than with a reloaded list
4290 Cow Dairy in California

- Conception on OvaSynch breedings higher than on regular breedings
- Easier for the workers to use the handheld versus working off a printed list
- Cow not on list, audio to skip cow

6,073 Cow Dairy in Idaho

- Some of their Labor Savings Weekly
  - Synchronization Shots 3 hours
  - Dry Off Cows 1 hour
  - Vet Check on Wednesdays 2.5 hours
  - Vet Check on Fridays 2.5 hours
  - Inventory 2 hours

- Eliminated a full-time labor position
**12,218 Cow Dairy in Idaho**

- 9 Pocket PCs and 6 RFID Scanners
- Cows are scanned 1 to 2 times every week
- Approximately 80,000 RFID scans per month
- Used by 13 employees on the dairy
- Used by 4 employees of the AI company that breeds the cows (Pocket PCs only)
- Saves the work crews two hours per day
- Eliminated the part-time data entry position

<table>
<thead>
<tr>
<th>Improved accuracy</th>
<th>Cows Missed</th>
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<tbody>
<tr>
<td>BST Injections:</td>
<td></td>
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<tr>
<td>Before RFID</td>
<td>15</td>
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<td>With RFID</td>
<td>2</td>
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<tr>
<td>(Results in more milk production.)</td>
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<tr>
<td>Systematic Breeding Injections:</td>
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</tr>
<tr>
<td>Before RFID</td>
<td>6 - 7</td>
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<tr>
<td>With RFID</td>
<td>Almost Zero</td>
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<tr>
<td>(Results in improved reproduction.)</td>
<td></td>
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</tbody>
</table>
RFID technology and Pocket DHI-Plus software

“It has paid for itself on our operation.”

John Beukers
Golden Valley Dairy

RFID technology and Pocket DHI-Plus software

“This is one of the few technologies that we have brought onto the dairy that our employees like more than we do. And, I love this thing!”

Tom Thompson
Stotz Dairy
RFID Improves Productivity

www.dhiprovo.com