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Medication Darts Are Gaining in Popularity - Do They Affect Meat Quality? Are There Risks?

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Introduction

Livestock, such as beef cattle or post-weaned dairy cattle that are not yet milking, are often relatively "tame" (sometimes the term tame may not apply very well) and can be readily approached within a few feet. However, without adequate restraint facilities or enough personnel, actually treating the livestock is often difficult and can become frustrating and dangerous to people and animals. A solution to this problem, which is being rapidly and increasingly adopted, is the use of medication darts. Many people in the livestock industry like using medication darts; they make administration of anthelmintics, vaccines, and treatments such as antibiotics a lot easier on everyone, including the animals. Nevertheless, many in the cattle industry are raising some concerns. What are some of the characteristics of medication darts? Is there reason for concern about meat and carcass quality associated with their use?

Medication delivery devices and darts - cost and usage information

- Sometimes referred to as pneumatic darts or remote drug delivery (RDD), darts are often fired from a rifle or pistol with pressurized gas, or a blank .22 caliber cartridge.
- When impacting the animal, the dart uses mechanical force or a charge to inject the contents of the medication chamber into the tissue. The dart gun is often referred to as a projector.
- The package including the projector and some darts can cost between $500 and $2,000. Five-packs of darts that hold between 1 and 10 cc's (ml can be used interchangeably for cc) cost between $13 and $30, often between $20 and $25.
- Some pistol or rifle projectors that propel darts using CO_2, cost between $260 and $600 without any darts included.

How are medication darts tested, approved or regulated?

Dee Griffin, veterinarian at Texas A&M, states, "*RDD use has grown exponentially in recent years, with dart sales numbering in the millions - darts for delivery of medication or vaccines to animals intended for food are not under any circumstances or in any way recommended, approved or condoned by any veterinary organization.*"

Mike Apley, Kansas State University veterinarian, has stated that the beef industry has adopted the RDD technology too rapidly and too widely before all of the impacts on food quality were studied.

Beef Quality Assurance (BQA) experts have concerns about the medication darts:

The primary concerns from a quality insurance standpoint are broken needles and improper administration of medication for withdrawal times and avoidance of residue. A

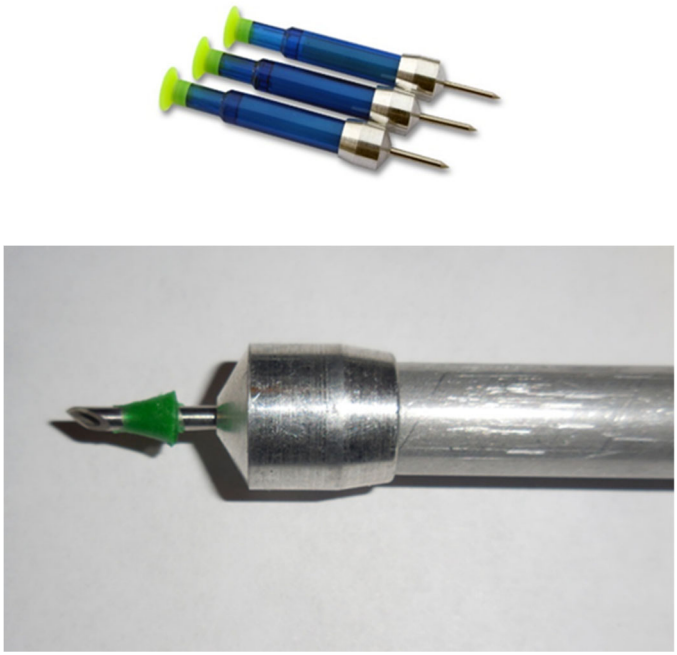

Image of some RDD medication darts and a close up view of another type of needle for animal drug delivery.

producer should consider the following points when using darts to medicate animals:

- Is the drug delivered to the correct tissue as labeled (e.g., SQ or IM)? Using remote delivery may not ensure proper placement of medication by route. It would be best to use a product that has both a SQ and IM label.
- Is the injection site recommended by BQA? When administering medications by darts, accurate placement into a small space takes practice and some operator skill. Some producers might be tempted to target injection sites that are not recommended by BQA.
- How sure can the producer or veterinarian be that foreign objects such as broken needles do not embed in the tissues?
- Carefully check equipment to ensure that micro-cracks or defects are not appearing in the needle or syringe. Also, needles may develop a burr which may contribute to abscess formation.
- Does my dart have adequate volume to inject the dose needed? Carefully review the volume that is required for the different medications intended for delivery by dart. The volume required may exceed the single dart capacity and require multiple dartings.
- There is speculation that unsterile darts can cause abscesses in meat. This may include contamination of medications while darts are being filled.

Preliminary research on medication darts failure to consistently inject the drug

A recent study[1] had some interesting findings:

- Four of 15 darts (27%) did not properly inject the medication.
- Most of the failed darts hit the preferred target area, while most darts that missed the target area were successful at injecting the drug.

Summary

Medication RDD darts will probably continue to grow in usage, and they offer convenience and in many cases, probably less stress for the cattle treated. However, there are some important problems as mentioned above to consider, and further research and possible modification of the darts appears to be needed.

References Cited

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