



**D3<sup>TM</sup> X NEEDLES**

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# Why Needles?

Over 175 years old – very little changes made.

Manufactured in the billions every year, the hypodermic syringe/needle may be the greatest medical device ever invented.

Simple, effective, intuitive, easily recognized.



# What's the big deal?

## Annual Market Hog Injections

*Assuming a High herd health status*

Southeastern U.S.     6

Upper Midwest        3 - 4

Estimated U.S. Average 5

2019 US Market Hogs  $\approx$  78 Million

Est. US Mkt. Hog Injections  $\approx$  390 Million annually

675 Million pigs worldwide



# What Causes Broken Needles

1. Bending and straightening of needles
2. Too many injections per needle
3. Wrong size needle for the job.
4. Improperly trained vaccinators



# What to do if a needle breaks in a pig

## Step 1. Mark the animal immediately – If possible?

*Identify the pig with a permanent mark.*

*Record the broken needle in the Treatment Record, including its location in the animal.*

## Step 2. Remove the broken needle

*If possible, remove the broken needle immediately.*

*Make sure to recover all the pieces of the broken needle.*

*Call the veterinarian if the needle cannot be removed.*

*Note: If the needle is not removed, it could lead to discovery either in the processing plant or in a consumer's kitchen. In addition, allowing a broken needle to remain could compromise the animal's well-being.*

## Step 3. Slaughter the animal on-farm

*If the broken needle cannot be removed, consider slaughtering the animal on-farm.*

## Step 4. Inform your marketing agency and/or your packer

*If steps 1,2, and 3 are not possible, then take the following action:*

*– ear tag the animal(s)*

*– contact your packer at least one week prior to shipping an animal with a broken needle, or a suspected broken needle, from the farm. Be aware that different packers may have different requirements for identification and for notification*



# Current Solution

## D3 Needle

Patented cannula technology

PQA Plus Compliant

Thick wall cannula to prevent bending

Designed to break if straightened

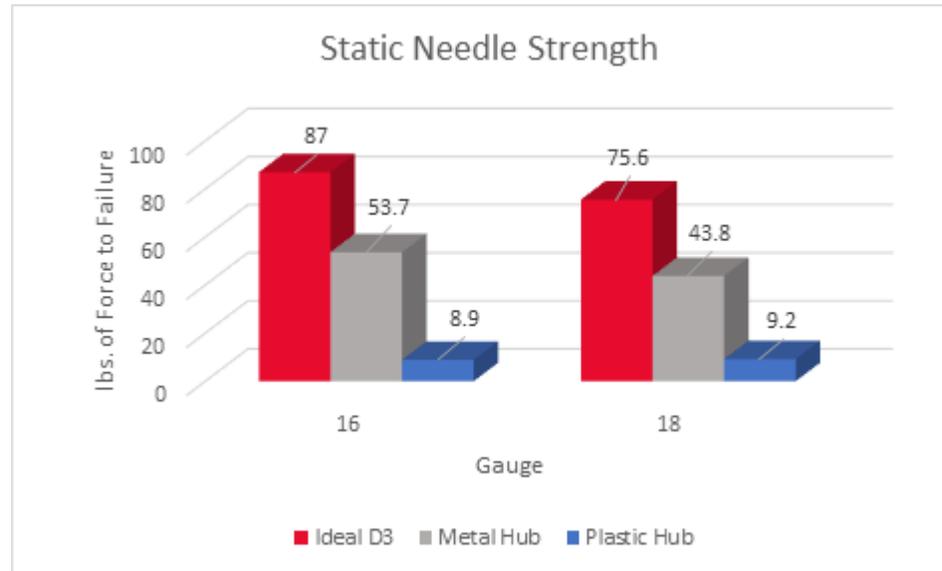
Durable Hub to help strengthen break point

Tri-Bevel to reduce burring, hold sharpness longer

Designed to be up to 100% detectable in processing.

*304 SS only 20 – 25% detectable.*

Trusted and proven for over 20 years



Not all needles are **detectable.**

**D3 Needles™**  
*Durable. Dependable.*  
**Truly Detectable.**

**NEOGEN**  
CORPORATION  
*a world leader in animal safety solutions*

## RECOMMENDED NEEDLE SIZES AND LENGTHS FOR SWINE

Age of Pig	Intramuscular (IM)		Subcutaneous (SQ)		Product Number
	Needle Gauge	Needle Length	Needle Gauge	Needle Length	
Baby pigs	20 G	½"	20 G	5/8"	9412AL
Nursery pigs	18 G	¾" or 5/8"	18 G	½"	9421, 9422
Finishing pigs	18 G	1"	18 G	¾"	9423, 9421
Breeding stock	16 G	1 ½"	16 G	1"	9420

### Ideal D3 Detectable Needles

Product Description	Product Number
NDL D3 AH 20 G x 1/2" Detectable HP 100/bx	9412AL
NDL D3 AH 20 G x 1" Detectable HP 100/bx	9411AL
NDL D3 AH 20 G x 1.5" Detectable HP 100/bx	9430AL
NDL D3 18 G x 1/2" Detectable HP 100/bx	9428
NDL D3 18 G x 5/8" Detectable HP 100/bx	9422
NDL D3 18 G x 3/4" Detectable HP 100/bx	9421
NDL D3 18 G x 1" Detectable HP 100/bx	9423
NDL D3 18 G x 1.5" Detectable HP 100/bx	9424
NDL D3 16 G x 5/8" Detectable HP 100/bx	9415
NDL D3 16 G x 3/4" Detectable HP 100/bx	9416
NDL D3 16 G x 1" Detectable HP 100/bx	9420
NDL D3 16 G x 1.5" Detectable HP 100/bx	9417
NDL D3 AH 14 G x 1" Detectable HP 100/bx	9418AL
NDL D3 AH 14 G x 1.5" Detectable HP 100/bx	9419AL



**The Red One. The Right One.**



Stainless steel detectable cannula

Brass hub

Tri-beveled tips



# Ripe for Innovation – You spoke, we listened.

1. Changes in detectability standards
2. Export barriers
3. 2018 NPPC Needle Forum
4. Responsibility shifted from packer back to farms
5. Brand protection for both Producer and Processor
6. Back to the drawing board

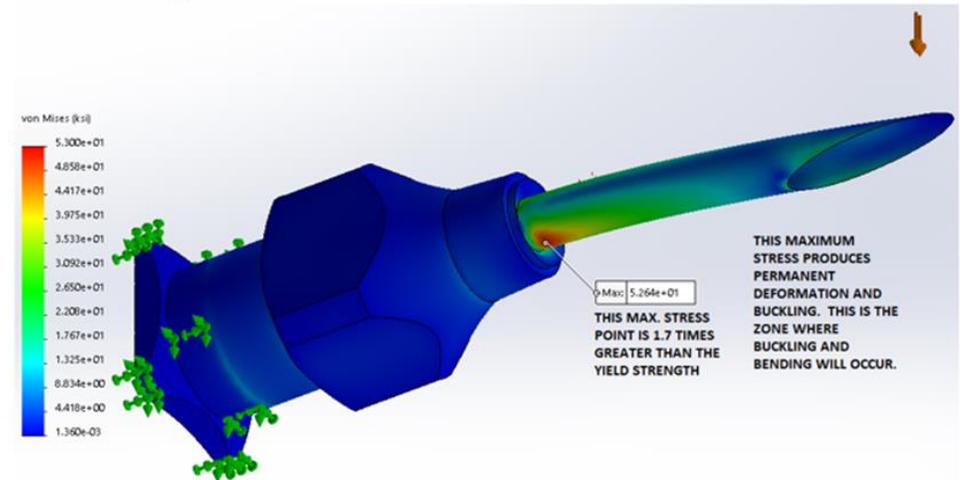


# Success Criteria

1. Does not add time to current overall vaccination process including prep and vaccination
2. Fast – Injection time 2-3 seconds with current viscosity vaccines
3. Economical
4. Intuitive, easy to use, no additional training needed
5. Detectable at all pig life stages
6. Production compatible from 20G to 14 G
7. Needles function easily in open pen environment
8. Broken needle can be easily detected
9. Broken needle can be easily retrieved or removed quickly
10. PQA Plus compliant

## CONCEPT DESIGN AND SIMULATION

Finite Element Analysis (F.E.A.) #3 - 9415 – 16GA – ALUMINUM HUB D3 Needle – 0.63 inch long  
VON MISES STRESS (ksi)





## *Taking the Best and Making it Better*

Since 2002, D3™ Needles have been the industry standard, protecting packers, producers, and consumers with superior dependability, durability, and detectability.

And now we've made it better by adding patented visibility and easy extraction. If a needle should break off in an animal, the extraction collar prevents it from migrating deeper and makes it easy to locate and extract.

**For the producer** this means reduced logistical nightmares caused by broken needles.

**For the packer** it provides an added layer of protection to the standard metal detectability.

**For the consumer** it provides the greatest gift of all — safer pork and peace of mind.



**D3™ X NEEDLES**



Highly  
Visible  
Extraction  
Collar



Thick walled D3  
Cannula and Point  
Geometry

Additional Cannula  
length to  
compensate for  
extraction collar



*Fully Assembled*

# D3™ X NEEDLES



- Detection responsibility shifted
- Same benefits of D3

- Highly visible detection
- On farm removal



- Several patents filed
- Trademark assigned

Ideal D3X Detectable Needles	
Product Description	Product Number
NDL D3X 14G x 1" Detectable HP 100/bx	9456
NDL D3X 14G x 1.5" Detectable HP 100/bx	9448
NDL D3X 16G x 1/2" Detectable HP 100/bx	9459
NDL D3X 16G x 3/4" Detectable HP 100/bx	9446
NDL D3X 16G x 5/8" Detectable HP 100/bx	9445
NDL D3X 16G x 1" Detectable HP 100/bx	9449
NDL D3X 16G x 1.5" Detectable HP 100/bx	9447
NDL D3X 18G x 1/2" Detectable HP 100/bx	9452
NDL D3X 18G x 3/4" Detectable HP 100/bx	9450
NDL D3X 18G x 5/8" Detectable HP 100/bx	9451
NDL D3X 18G x 1" Detectable HP 100/bx	9453
NDL D3X 18G x 1.5" Detectable HP 100/bx	9454
NDL D3X 20G x 1/2" Detectable HP 100/bx	9444
NDL D3X 20G x 1" Detectable HP 100/bx	9457
NDL D3X 20G x 1.5" Detectable HP 100/bx	9458



# Features & Benefits

## 1. Dual Detection

- Proprietary metal alloy- Used in previous version of D3/HDN needle. Up to 6 times more detectable than regular stainless-steel needles.
- Highly visible Extraction Collar- Collar prevents needle from submerging under skin and is bright in color to easily see.

## 2. On-Farm Removal

- Easy to grip Extraction Collar- Allows for immediate removal of needle by any worker.

## 3. Durable

- Thick-walled cannula- Increases load strength and decreases bending and breaking more than 6 times over conventional needles.

## 4. Dependable

- Trusted for 20 years- The D3 needle has been the standard for swine needles across the world since 2002.