Module 11: Sheep and Goats: Disease Awareness and Health Certificates

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Tablet Sign in

- New method for sign in
- Replaces paper sign in sheet
- To ensure you get credit you must sign in for each module using the iPad circulated around the room

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Directions

- Tap on the first name field and then on each subsequent field on the iPad screen
- Date of birth must be entered as: MM/DD/YYYY
- Select submit
- Read the confirmation screen to ensure the information displayed is yours
- Select confirm
- Pass the tablet to the next participant

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If No Match Found

- Your name must match exactly what is in our records.
 - e.g. "Jim" not "James", "McDonald" vs "Mc Donald"
- If "No Match Found" displays on the screen after you attempt to enter your name and date of birth twice, pass the tablet to the next participant and see the instructor after the session.

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Supplemental Training

- 1. Print clearly on the sign-in sheets.
- 2. It is critical that we have your current email address for your accreditation renewal.
- 3. If you do not know your 6 digit National Accreditation Number, please see me at the conclusion of the presentation.
- 4. You will receive a Certificate of Completion during the presentation.
- Keep your Certificate of Completion foreverdo not send it to APHIS.

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Supplemental Training

- All APHIS Approved Supplemental Training (AAST) modules are also available on our Website with interactive features and links to additional Web resources.
- Type "NVAP" into your search engine e.g. Bing, Google, Yahoo.

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Supplemental Training

- Familiarize accredited veterinarians with animal health regulatory concepts and activities
 - Does not supersede the regulations
- · For the most up-to-date regulations and standards, please refer to:
 - Code of Federal Regulations
 - Local VS District Office
 - APHIS-Scrapie Website

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Overview

- Common diseases of sheep/goats
 - Identify zoonotic
- Four requirements for USDA to officially recognize scrapie genotype test
- National Scrapie Eradication Program vs. Scrapie Flock Certification Program
- · Official identification required for movement
- · Common errors on IHCs and CVIs

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Overview of the Sheep and **Goat Industry**

- · Raised for variety of goods
 - Milk, meat, wool, cashmere, mohair
- · Raised for show, companionship, diagnostic/laboratory research
- January 2012
 - 5.35 million head on 80,000 operations
 - 360,000 dairy goats produced 23 million pounds of milk
 - 2.36 million goats raised for meat146,000 goats raised for mohair





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Animal Movement and Disease Awareness

- Importation regulated due to infectious disease incidences
- Travel interstate/internationally
 - Accredited veterinarian inspected
 - Lack of apparent illness
 - Collect samples for testing
 - Certificates of Veterinary Inspection (CVI)
 - International Health Certificates (IHC)

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Diseases

Bluetongue

- Bluetongue virus
 - Genus *Orbivirus*, family *Reoviridae*
- Species affected
 - Sheep, cattle, goats, wild ruminants
 - Humans not susceptible
- Geographic distribution
 - Africa, Asia, Australia, Europe, Middle East, N. America, S. America, S. Pacific
- Transmission
 - Vector, fomite, direct contact

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Bluetongue (cont'd)

- Sheep
 - Fever, swollen cyanotic tongue, excessive salivation, depression, dyspnea, panting, hyperemic coronary bands, lameness
- · Cattle, Goats
 - Mostly subclinical
 - Vesicles/ulcers in mouth and on skin, hyperemia of coronary bands, hyperesthesia, temporary sterility in bulls



Wild Ruminants

Varies from none to widespread hemorrhage; sudden death

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Brucellosis

- Brucella melitensis
 - Gram negative coccobacillus, family *Brucellaceae*
- Species affected
 - Small ruminants; occasionally cattle, camels, dogs; rarely horses, pigs
 - Humans are susceptible
- Geographic Distribution
 - Mediterranean, Middle East, Central Asia, Arabian Gulf, Mexico, Central America
- Transmission
 - Direct contact, oral, fomite

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Brucellosis (cont'd)

- Sheep, goats
 - Abortion, stillbirth, birth of weak offspring, decreased milk production; orchitis and epididymitis in males; arthritis in both sexes
- Cattle
 - Abortion
- · Camels, dogs
 - Abortion, orchitis, epididymitis
- Humans
 - Variable; acute, febrile, flu-like illness with headache, malaise, aches, pains; can result in complications of various organ systems

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Caprine Arthritis and Encephalitis

- CAE Virus
 - Genus Lentivirus, family Retroviridae
- Species affected
 - Goats, sheep
 - Humans not susceptible
- · Geographic Distribution
 - Most industrialized countries, including U.S.
 - Rarely found indigenously in developing countries
- Transmission
 - Oral, direct contact, fomite

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Caprine Arthritis and Encephalitis (cont'd)

- Goats
 - Most non-clinical
 - Kids: encephalomyelitis
 - Adults: Chronic polyarthritis; indurative mastitis in does
 - Disease course is slow, but progressive
- Sheep
 - Little known



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Contagious Ecthyma (Soremouth or Orf)

- Orf Virus
 - Genus Parapoxvirus, family Poxviridae
- Species affected
 - Sheep, goats, hooved animals, rarely dogs
 - Humans are susceptible
- Geographic distribution
 - Worldwide in all sheep-raising countries
 - U.S., most common in western states
- Transmission
 - Direct contact, fomite

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Contagious Ecthyma (cont'd)

- Sheep and goats
 - Papules, pustules, vesicles on mouth, face, feet, or perineal area; can affect gastrointestinal, respiratory tracts; lesions lead to anorexia, lameness



- Humans
 - Small, firm, red/blue papule where inoculation occurred

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Johne's Disease (Paratuberculosis)

- Mycobacterium avium spp. paratuberculosis
 - Family *Mycobacteriaceae*
- Species affected
 - Domestic and wild ruminants
 - Non-ruminants
 - Human susceptibility not understood
- Geographic distribution
 - Worldwide
- Transmission
 - Oral, fomite, vector

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Johne's Disease (cont'd)

- Sheep and goats
 - Noticeable weight loss, wool is damaged and easily shed



- Diarrhea, wasting
- Non-ruminants
 - Intestinal lesions in rabbits, non-human primates

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Ovine Progressive Pneumonia (Maedi-visna)

- Maedi-visna Virus
 - Genus Lentivirus, family Retroviridae
- Species affected
 - Sheep, goats
 - Humans not susceptible
- · Geographic distribution
 - Most sheep raising countries except Australia and New Zealand
- Transmission
 - Oral, aerosol

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Ovine Progressive Pneumonia (cont'd)

- Most asymptomatic
- Sheep
 - Wasting, progressive dyspnea (maedi), dry cough
 - Eventually fatal
- - Subtle neurological signs (visna) progress to paraplegia
 - Typically die of inanition





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Q Fever

- Coxiella burnetii
 - Obligate intracellular rickettsial pathogen, family Coxiellaceae
- · Species affected
 - Sheep, goats, cattle, multiple mammal and bird species
- Humans are susceptible
- Geographic distribution - Worldwide, except
 - New Zealand
- Transmission
 - Aerosol, direct contact, oral, vector



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Q Fever (cont'd)

- Goats
- Poor appetite and lethargy prior to abortion
- Sheep/other animals
 - Usually non-clinical
 - Signs of reproductive disease
 - Abortion
 - Stillbirth
 - Retained placenta
 - Endometritis
- Humans
 - Asymptomatic to fever, chills, headache, fatigue, malaise, myalgia, chest pain, pneumonia, hepatitis, endocarditis, meningitis, encephalitis, osteomyelitis, vasculitis

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Scrapie

- Agent: Prion (PrPsc)
 - Infectious proteins
 - Transmissible spongiform encephalopathy (TSE)
- · Species affected
 - Sheep, goats, wild sheep
 - Not thought to be zoonotic
- Geographic distribution
 - Worldwide except Australia and New Zealand
- Transmission
 - Direct contact, oral

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Scrapie (cont'd)

- Clinical signs
 - Subtle behavioral changes, ataxia, gait abnormalities, weight loss, weakness, recumbency, intense pruritis, rubbing,

chewing, wool loss, abraded or thickened skin

- Often continue to eat
- Sudden death observed in some animals



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Zoonotic Brucella melitensis Contagious Ecthyma (Orf) Q Fever Not Zoonotic Bluetongue Caprine Encephalitis and Arthritis (CAE) Johne's Disease Ovine Progressive Pneumonia (OPP) Scrapie

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Scrapie

"Scrapie" will refer to classical scrapie Incubation period 2-5 years Scrapie video clips on APHIS website Behavioral and neurological signs Bilateral gait abnormalities, incoordination, ataxia, tremors, stargazing, abraded, rough, thickened, and/or hyperpigmented areas of skin, increased sensitivity to noise and sudden movement, intense rubbing, bilateral abraded wool, poll abrasions, head pressing, chewing, and weight loss despite retention of appetite

Scrapie

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Impact of Scrapie

- Presence of scrapie prevents export of breeding stock, semen, embryos
- National Scrapie Eradication Program (NSEP)
 - Eradicating scrapie
 - Prevalence of scrapie near zero by 2017
- Scrapie Flock Certification Program (SFCP)



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Accredited Veterinarian's Role in Scrapie Eradication

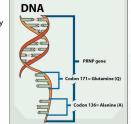
- · Educating producers
- Writing CVIs, drawing blood for genotyping, applying ear tags
- · Reporting scrapie suspects
- Collecting and submitting samples
- Assisting producers in developing and successfully completing flock clean-up plans
- · Providing export processing guidance
- · Writing IHCs for exports

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Genetic Component of Scrapie

- Prion Protein Gene (PRNP)
 - Codon 171
 - Major determinant
 - Q and H: similar susceptibility
 - K: rare, unknown effect
 - Q, H, and K: reported and treated as Q
 - R: reported as R when found
 - Codon 154
 - Not often used in U.S.
 - Codon 136
 - Valine-associated scrapie
 - V, A, rarely T
 - T treated as V



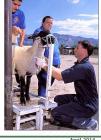
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1	Ewe (136/171)	Ram (136/17	71)	
		AQ	VQ	AR
	AQ	AA QQ	AV QQ	AA QR
	VQ	AV QQ	VV QQ	AV QR
	AR	AA QR	AV QR	AA RR
	Highly Suscept	ible Rarely	Susceptible	Resistant

Official APHIS Recognized Genotyping Test • Genotype tests susceptibility only

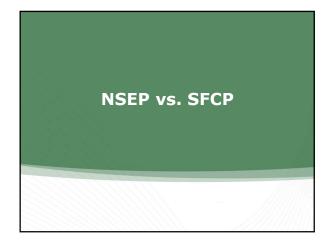
- Requirements
 - Blood drawn by an accredited veterinarian
 - Sheep is officially identified, identification recorded on VS Form 5-29
 - Sample submitted with properly completed VS Form 5-29
 - Laboratory is APHIS-approved
- VS Form 5-29 must be original with preprinted serial number



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Section Summary

- Economic impact of scrapie
- · Accredited Veterinarian's role in scrapie eradication
- Genetic components of scrapie
- Official APHIS recognized genotyping test
 - Blood drawn by accredited veterinarian
 - Officially identified sheep
 - Submitted with properly completed VS Form 5-29
 - Blood sent to APHIS approved laboratory



NSEP	SFCP
Mandatory	Voluntary
Some approved tags are tamper resistant, not tamper evident	Can only use tamper evident tags
Acceptable to ID animals when leaving farm	ID all animals in flock >1 year old and potential breeding animals <1 year when leaving the farm
Same interstate requirements as SFCP	Same interstate requirements as NSEP
No inspections, unless on a PEMMP	Annual inspections required for flocks in the Export Category
Allowed to purchase sheep from anyone	Status affected by purchases and commingling
Keep records of sales/dispositions and acquisitions and tags applied for 5 years	More recordkeeping required – refer to SFCP Program Standards (keep all records at least 7 years)
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Available Identification Types (NSEP and SFCP)

Eartags

- USDA provided/approved
- U.S. Shield
- Serial numbers, herd/flock ID/animal numbers, 840 RFID tags

- Tag colors

 White plastic or metal: standard issue

 Blue plastic or metal: MEAT (ONLY) or SLAUGHTER ONLY
 - Yellow metal: scrapie-exposed
- Red metal: scrapie-positive

Tattoos

- Prefix is scrapie premises ID number
- Registration certificate/CVI

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Available Identification Types (NSEP and SFCP) – cont'd

- · Subcutaneous electronic microchips
 - Copy of registration certificate listing microchip number
 - Scanner to read device
 - May be used as primary ID if enrolled in SFCP
- Ear notches/paint brands
 - Low-risk commercial flocks
 - Brand inspection certificate
 - Owner's statement
 - Veterinarian's statement

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National Scrapie Eradication Program (NSEP)

- Flocks exposed to/confirmed to have scrapie are investigated
- Depending on flock's status
 - Removed and tested
 - Tested and/or monitored
 - Enrolled in clean-up plan
- Documents providing details about NSEP
 - A Guide to the National Scrapie Eradication Program for Veterinarians, June 2009
 - The Scrapie Eradication Uniform Methods and Rules, June 2005

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NSEP Animal Identification

- Animal Identification (ID)
 - Identified with official APHIS-issued or approved ID
 - Animals can be traced to flock/herd of origin
 - Exposed, high-risk animals traced to current location
 - Prevent spread of scrapie within and from infected, source, exposed flocks/herds



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NSEP Official Identification Requirements

- Official ID devices must be approved by USDA
 - U.S. Shield
 - Two-letter state abbreviation
 - Flock ID number and individual ID number OR
 - Eight digit serial number



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NSEP - Animals Not **Needing Identification**

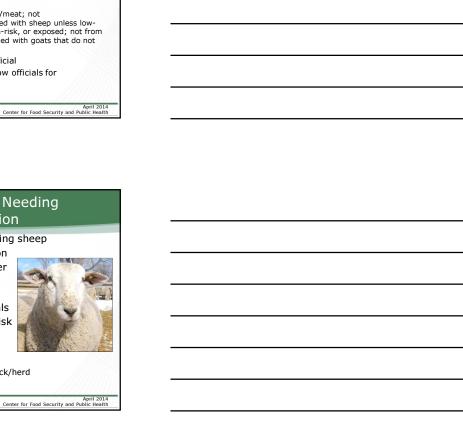
- · Sheep under 18 months of age moving into slaughter channels
- · Wethers for exhibition
- Goats moving into slaughter channels
- Animals moving for grazing, no change in ownership
- Low-risk commercial goats
 - Moved to slaughter; raised for fiber/meat; not registered/exhibited; not commingled with sheep unless low-risk flock; not scrapie-positive, high-risk, or exposed; not from infected/source herd; not commingled with goats that do not meet these criteria
- Check with State Animal Health Official
- Encourage clients to check with show officials for additional requirements

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NSEP - Animals Needing Identification

- · Breeding and potential breeding sheep
- Sheep and goats for exhibition
- All sheep 18 months and older
- · Noncompliant flocks
- · Scrapie exposed, suspect, test-positive, high-risk animals
- · Breeding goats, except low-risk
- · Sheep under 18 months
 - Pregnant
 - Have aborted
 - Sexually intact from infected flock/herd

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NSEP - Surveillance and Flock Clean-up

- Surveillance
 - Testing targeted animals at harvest
 - Flocks under investigation
 - Scrapie suspect was born
 - High-risk females or suspect animal
 - Tissues tested were not confirmed negative
- Flock clean-up
 - Flocks placed under movement restrictions
 - Must have flock plan

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Post-Exposure Management and Monitoring Plan (PEMMP)

- · Written agreement, signed by
 - Flock owner
 - Accredited veterinarian
 - Federal or State representative
- Reduce risk and monitor for scrapie
- Monitoring for at least five years after
 - Last high-risk animal removed from flock or last exposure of flock to scrapie-positive
- Requirements in 9 CFR 54.8

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Section Summary

- Program comparison
- Available ID types for both NSEP and SFCP
- NSEP
 - ID requirements
 - Surveillance and Flock Clean-up
 - PEMMP

Scrapie Flock Certification Program (SFCP)

Scrapie Flock Certification Program (SFCP)

- Monitor sheep flocks, goat herds
- Certify scrapie status of animals enrolled
- Purpose
 - Reduce occurrence and spread of scrapie
 - Identify flocks free of evidence of scrapie over specific time periods
 - Eventual eradication of scrapie from the U.S.
 - Enhance marketability of enrolled animals



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SFCP Flock Categories

- Export Category
 - Stringent requirements for flock additions, sampling, contact with other flocks
 - 7 years of compliance
- Select Category
 - Provide scrapie surveillance in flocks
 - Open to any flock
 - Supports eradication effort
- Do not become export certified, but can maintain status
- Flock enrollment application package includes:
 - Completed VS Form 5-22, Application for SFCP; Flock Records; VS Form 5-19, Flock Inspection and Epidemiology Report

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Export and Select Category Flocks

- Reporting immediately any scrapie suspects and animals with neurological and debilitating illnesses
- Proper tissue samples collected and submitted from animals that exhibit clinical signs or animals found dead or euthanized ≥ 18 months
- All animals are properly identified



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Export Category Flocks

- For flocks planning to export animals
- Identification requirements (animals over 12 months of age):
 - Tamper-evident ear tags
 - Ear tattoo
 - Electronic implant
 - Registry tattoos
 - · Secondary ID at owner's discretion

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Select Category Flocks

- Open to any flock
- Mainly intended for slaughter-lamb producers
- Apply by making application to State Scrapie Certification Board (SSCB)
- Must officially ID all animals 18 months of age or older

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Status Change

- Flock will lose Export status if
 - Scrapie is found
 - Non-participating/lower status female sheep or goats are added to flock
 - Compliance irregularities occur
- If status is in question, status may be suspended
 - May not sell animals as "enrolled" animals

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Submission of Scrapie Suspects

- Scrapie suspected, contact
 - APHIS representative
 - State Animal Health Official
 - Accredited veterinarian
- Responsibility of producer to have accredited veterinarian collect samples/preserve head for sampling

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Section Summary

- Scrapie Flock Certification Program
 - Voluntary program
 - Monitor sheep flocks and goat herds
 - Certify scrapie status

International Heath Certificates and Certificates of Veterinary Inspection

Role of the Accredited Veterinarian

- The Standards for Accredited Veterinarians
 Code of Federal Regulations, 9 CFR 161
- Movement within state, between states, internationally
- Certificate of Veterinary Inspection
- International Health Certificate
- Record attesting lack of apparent illness



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Veterinarian's Liability

- Certificate should not be completed/signed
 - Health of animal is questionable
 - Information provided is not accurate/complete
- IHCs and CVIs are legal documents
- Errors that may increase chances of enforcement action
 - Leaving blanks post-signature
 - Allowing owners to submit animal tissue/blood samples
 - Failing to confirm official identification

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International Health Certificates

- VS Form 17-140
 - NVAP Module 2: Role of Agencies and Health Certificates
- · Countries may require
 - Additional paperwork, additional animal testing, certification statement(s)
- Checking current import regulations of destination country is essential
- APHIS International Animal Export Regulations (IREGs)
 - Contact Embassy/Consulate of destination country or Department of Ministry of Agriculture for specific details

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Certifying Animals for Export

- Countries may require animals be maintained in USDA-approved isolation facility
 - APHIS veterinarian must inspect and approve facility
- Identification requirements of NSEP and destination country



Scrapie Eradication
 Uniform Methods and Rules

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Animal Testing

- Contact endorsing VS District Office for guidance on procedures
- If isolation facility required, tests completed after entering
- Request specific test type, negative dilution titer required
- Include date samples were collected on submission form
- Indicate test for international export, specify destination country

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Other Requirements

- Perform additional treatments required
- · Administer all treatments in accordance with label directions
 - Contact ADD if destination country requests treatment outside of label directions
- Include all details
 - Active ingredient, dose, route of administration
- · Do not paraphrase



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Completing an International Health Certificate (IHC)

- · Consignor's name, address
- Consignee's name/business name, physical address
- Name, address of physical location of the animals
- Species and number being exported
- Official ID, description
- U.S. port of embarkation
- · Negative results of other tests
- Certification Statements
- Sign and date certificate

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ROBINSON PARROUTLETS

ADMINISTRATION FOR THE PARROUTLETS

PROLET TOWN

PROLET TOWN

PROLET TOWN

PROPRIES

IHCs Requiring Endorsement

- Completed signed IHC
- Laboratory results
 - Original, carbon copy, or have lab transmit results directly to VS **District Office**
- If sending overnight, be sure to have correct street address
- Provide methods, directions for return delivery of endorsed documents to you and the owner

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Completing a Certificate of Veterinary Inspection (CVI)

- · Required for interstate movement
- Regulations vary from State to State, may depend on State of origin
- Not eligible for interstate movement except by permit VS-Form 1-27 or equivalent
 - Scrapie-positive
 - Scrapie-suspect
 - High-risk, including exposed animals of unknown genotype



· Office of the State Animal Health Official

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Completing Certificates

- International Health Certificates
 - Requirements of receiving location
 - Common mistake
 - Recording farm identification number rather than official identification number
- Certificates of Veterinary Inspection
 - Requirements of receiving location
 - Common mistakes
 - Forgetting to record permit number
 - Not completing certificate legibly

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Conclusion

- Key role in disease prevention through attentive, thorough inspection of sheep and goats destined for movement
- National Scrapie Eradication Program, Scrapie Flock Certification Program
 - Eradication of classical scrapie in U.S.
- Certificates of Veterinary Inspection, International Health Certificates

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Supplemental Training

- This informational presentation has been approved expressly to serve as one unit of supplemental training for participants in USDA's NVAP.
- Please ensure you complete, sign and retain a certificate stating that you attended this presentation.
- Contact your VS District Office for more details.

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Acknowledgments

- · Prepared by the Center for Food Security and Public Health at the College of Veterinary Medicine, Iowa State University, Authors and contributors include
 - Tegwin K. Taylor, DVM, MPH
 - Danelle Bickett-Weddle, DVM, MPH, PhD, DACVPM Megan M. Smith, DVM

 - Sarah Weiland, student intern Jan LaVille, CFSPH Editor
- · Illustrations designed by - Andrew Kingsbury, BFA
- Content and review provided by
 Diane Sutton, DVM
- Alan Huddleston, VMD

- · Reviewed within USDA-APHIS-VS by:
 - Clement Dussault, VMD
 - Todd Behre, DVM, PMP
 - Jamie Snow, DVM, MPH - Timothy Cordes, DVM
- Previous versions reviewed by:
 - Wayne Zielenga, DVM, MBA Sue Skorupski, M.S., DVM

The content has been reviewed and approved by USDA-APHIS Legislative and Public Affairs

- Larry White, DVM

- Larry White, DVM

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