

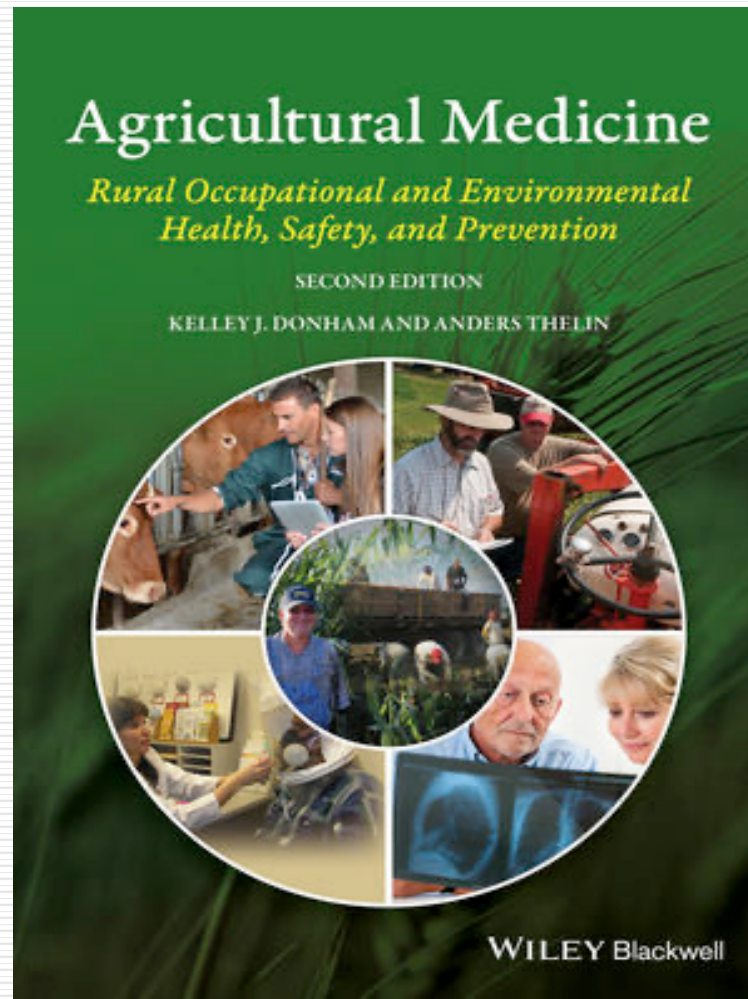
Skin Diseases of Agricultural Workers

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2022

NE – CS-CASH Ag Med Core Course

General references for this presentation is Donham
and Thelin, [Agricultural Medicine](#), 2016

Agricultural Medicine, 2016, Donham & Thelin
General Reference for all my lectures
(Additional references in slides following)



Ag Skin Conditions Topics Covered Today

- Prevalence (56% of all reported Ag Illnesses) (NIOSH)**
- Sources of exposure**
- Symptoms/signs**
- Treatment**
- Prevention**



Contact Dermatitis: 3 Types

Irritant

- ◆ Chronic
- ◆ Acute

Allergic

- ◆ Chronic
- ◆ Acute

Photo

- ◆ Photocontact
- ◆ Photoirritant

Irritant Contact Dermatitis:

Single exposure, strong irritant

Multiple exposures, weak irritant

Allergic:

Re-exposure to antigen, cell-mediated immunity

May be an acute or delayed response

Photocontact:

Sunlight changes the chemical to an allergen (photoallergic), or an irritant (photoirritant)

Irritant Contact Dermatitis :

- ❑ **Acute: Single exposure, strong irritant**

(Dermatitis from gasoline)



- ❑ **Chronic: Multiple exposures, weak irritant**

(Rubber gloves used to handle pesticides)



Allergic Contact Dermatitis (acute and chronic forms)

Chlorinated Acetanilides

(e.g. Herbicides propachlor,
alachlor)



Acute

Maleic Hydrazide

Thiram

*(Note, it is difficult to
Tell Chronic Allergic
From Chronic irritant contact
Dermatitis)*



Chronic

Allergic Contact Dermatitis

Sensitizers on the farm (see complete list Donham & Thelin 2016)

INSECTICIDES	Herbicides	Fungicides	Biocides & Fumigant	Antibiotics	Dusts, and animal Dander
Carbaryl (a carbamate)	Thiram Chlorinated acetanilids. Propachlor, alachlor	Thiram Captafol	Formaldehyde	Penicillin	Cattle Dander
Pyrethrum and pyrethroids	Maleic hydrazide	Imidazoles (e.g. imazapyr, imazapic, imazethapyr)	Iodine	Streptomycin	Grain Dust
Phenothiazine				Sulfa drugs	Hay Dust

Medicated Feed Mixes

- **Phenothiazine**
- **Penicillin**
- **Sulfa drugs**
- **Streptomycin**



Plant – Induced Allergic Contact Dermatitis

[HTTP://WWW.ELSEVIER.PT/EN/REVISTAS/-/ARTIGO/ALLERGIC-CONTACT-DERMATITIS-TO-PLANTS-UNDERSTANDING-THE-CHEMISTRY](http://www.elsevier.pt/en/revistas/-/artigo/allergic-contact-dermatitis-to-plants-understanding-the-chemistry)

Rhus Plants = Urushiol



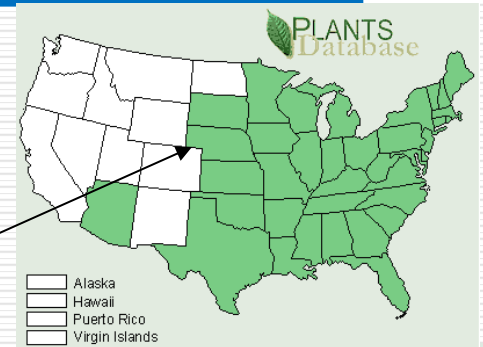
POISON IVY



POISON OAK



POISON SUMAC



The common Allergen from Rhus Plants = Urushiol



Urushiol absorbs/binds to skin within 30 minutes of exposure ¹²

Chronic or Subacute Allergic Contact Dermatitis from Rhus Plants

- 75% of people react
- Eruption 12 – 72 hrs
- Extent of rx depends on amount of exposure and thinness of skin



Chronic Rhus Allergic Contact Dermatitis



What is it? How did it happen?



Windborne Ragweed oleoresin allergic contact dermatitis



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(CNN)



Rag Weed

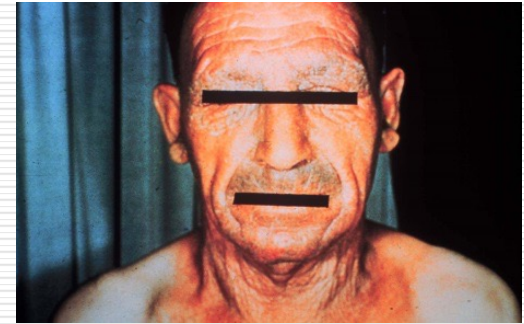


Giant Rag Weed(Horseweed) ¹⁷

Ragweed



Oleoresin = Allergic Contact
Dermatitis



Protein (Pollen) = Allergic Rhinitis



Rhus Dermatitis Treatment

Minor – make it pink

If Severe – Need more than pink

**Topical and or Systemic Corticosteroids
(30-80 mg prednisone)**

Compresses, colloidal baths, Calamine lotion (zinc oxide
(ZnO) with about 0.5% iron(III) oxide (Fe_2O_3)).



Prevention

Eliminate, reduce exposure, and protect the skin

- Protective clothing
- Changing clothes
- Washing skin and clothes
 - Soap and water.
 - Alcohol or vinegar may help
 - Octylphenoxy-Polyethoxyethanol, mixed fatty acid soap
 - Must wash skin within 30 minutes of exposure
- Skin barriers, e.g. Ivy Block (Bentoquantum, 5% Rx)
- Immunization (oral or injection)
 - not very effective



To
eliminate...



Grubbing/
Herbicides

Other Plant Dermatoses

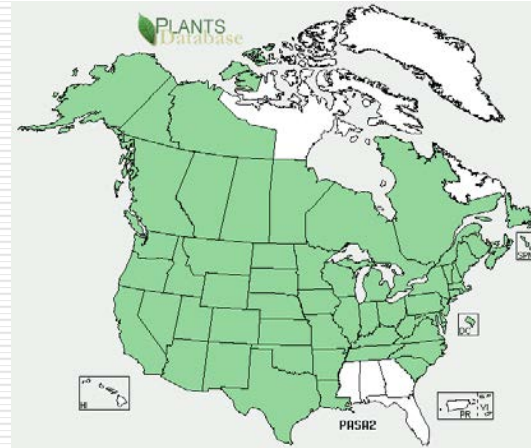
(See Table 4.3, p162, Donham 2016)



Phototoxic Dermatitis Harvested Carrots, Celery, Parsnip (Ubelliferae = Furocumarins)



Wild Parsnip (*Pastinaca sativa*)



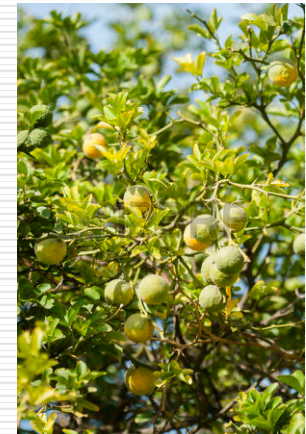
Other plants with Furocumarins

□ Other Umbelliferae

- Common Hog Weed
- Giant Hog weed

□ Plants of Family Rutaceae

- Lemmon
- Lime
- Bergamont



Bulb Finger

Allergic or chronic contact dermatitis

Allergen/irritant = Butyrolactone



Heat Induced Dermatitis

Heat + Moisture = Miliaria Rubra

Prevent = Ventilation, Hygiene, talcum powder

Treat = topical Antibiotics + Steroid



Arthropod Dermatoses: in Rural and Agricultural Health



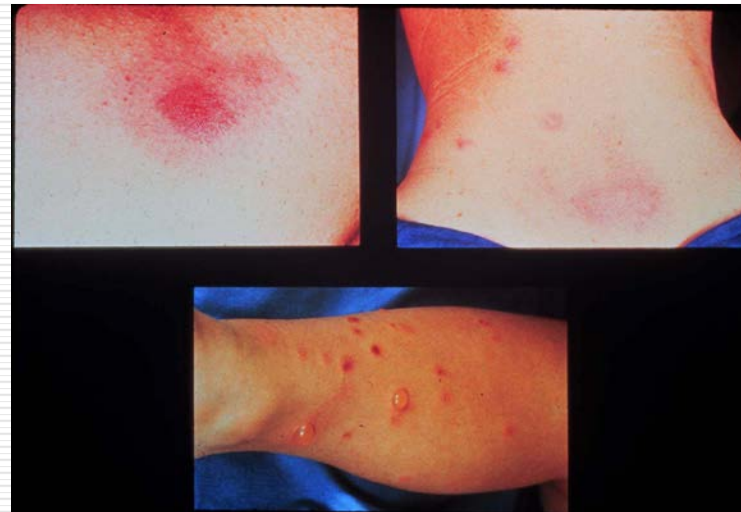
Beekeepers (Kelley with Bees)



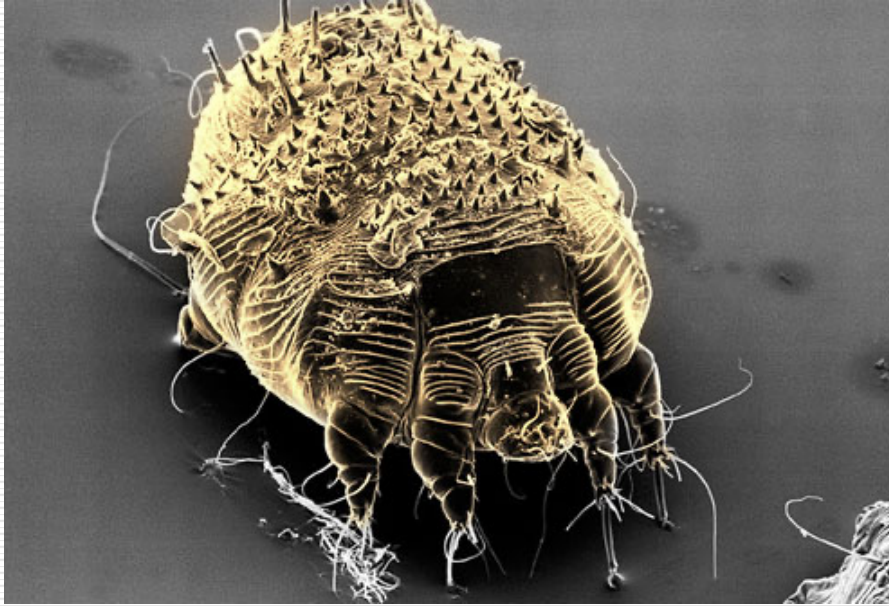


Hymenoptera (Stinging Arthropods)

- ❑ Stings, pain and first, swelling, purities for up to 2 weeks
- ❑ Toxins similar in all hymenoptera venons
- ❑ Histamines, proteinases, melittin
- ❑ Treatment
 - None
 - Remove stinger
 - Antibiotic + Steroid
- ❑ Allergic condition
 - 5% of population allergic
 - Epinephrine + antihistamine (epi pen)
 - Antisensitivity treatment



MITES



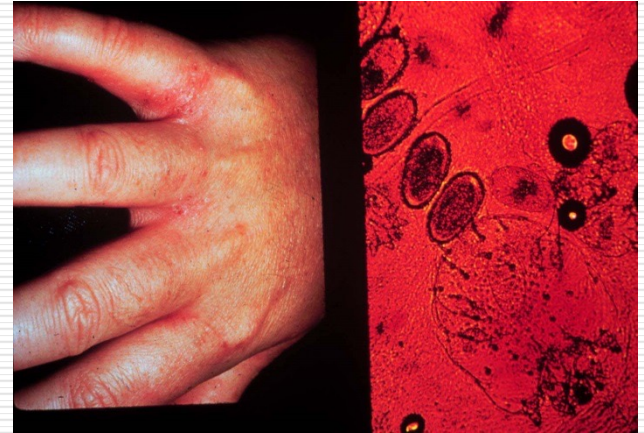
Sarcoptic Mites

(animal host dependent):

- Species Specific

Human Sarcoptes
Scabiei

Will reproduce on people



- Animal specific mites – Sarcoptic and Demodex spp.

Won't reproduce on humans
(only temporary inflammation)



Free Living mites

(don't live on animals)

- Temporary Inflammation, not infection
 - Grass (chiggers)
 - Grain mites
 - Straw
 - Oak trees

"Chiggers" (aka trombicula alfreddugesi)



Oak Mites

Most Cases Reported in KS, NE

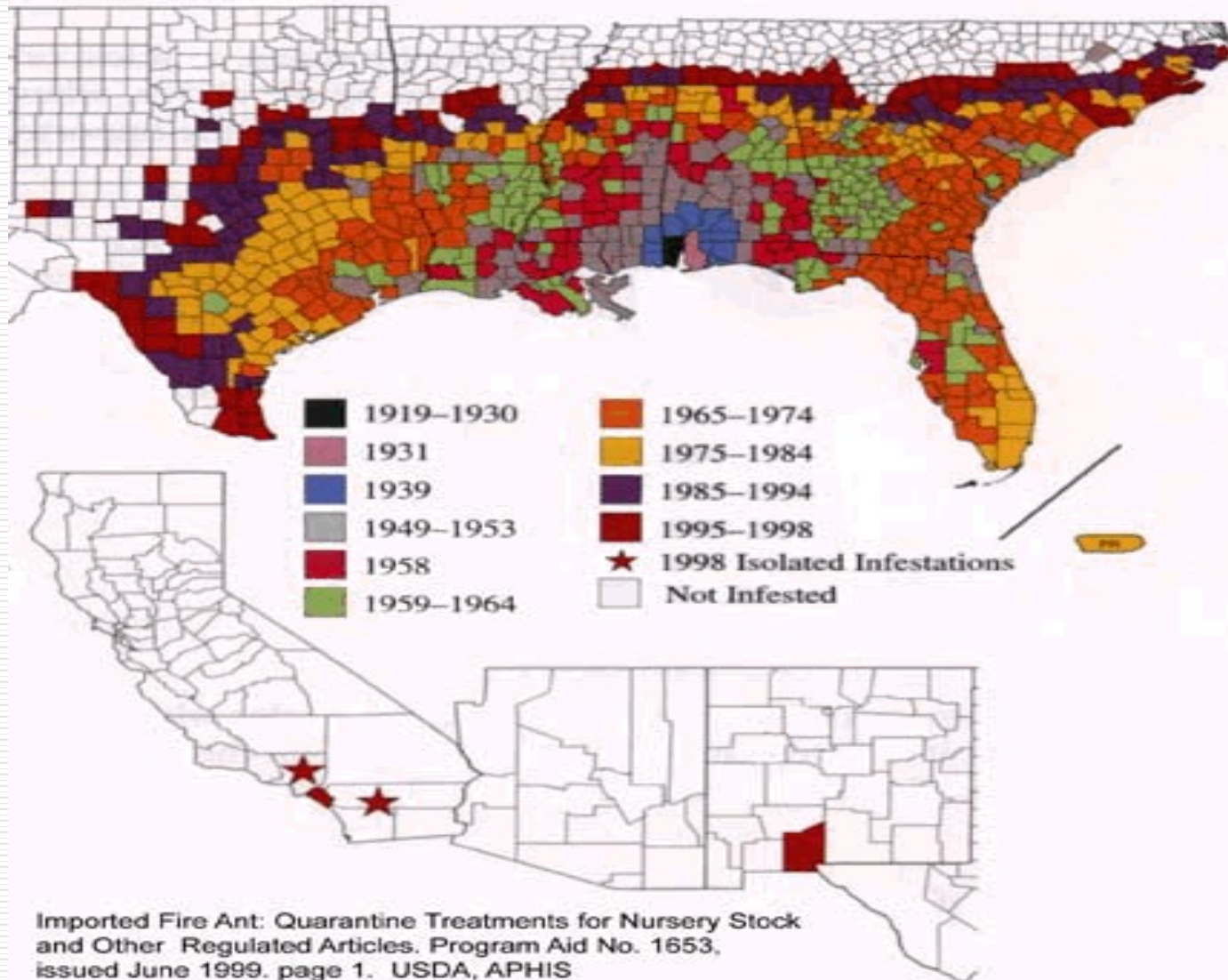


**Primary host is larvae of midge fly
which parasitizes oak leaves**

FIRE ANTS



Range Expansion of IFA From 1918–1998



Imported Fire Ant: Quarantine Treatments for Nursery Stock and Other Regulated Articles. Program Aid No. 1653, issued June 1999. page 1. USDA, APHIS

Prevention

- Light-colored, non-flowery clothing**
- Non-scented preparations**
- Avoidance**
- Insecticide**
- Diethyltoluamide**

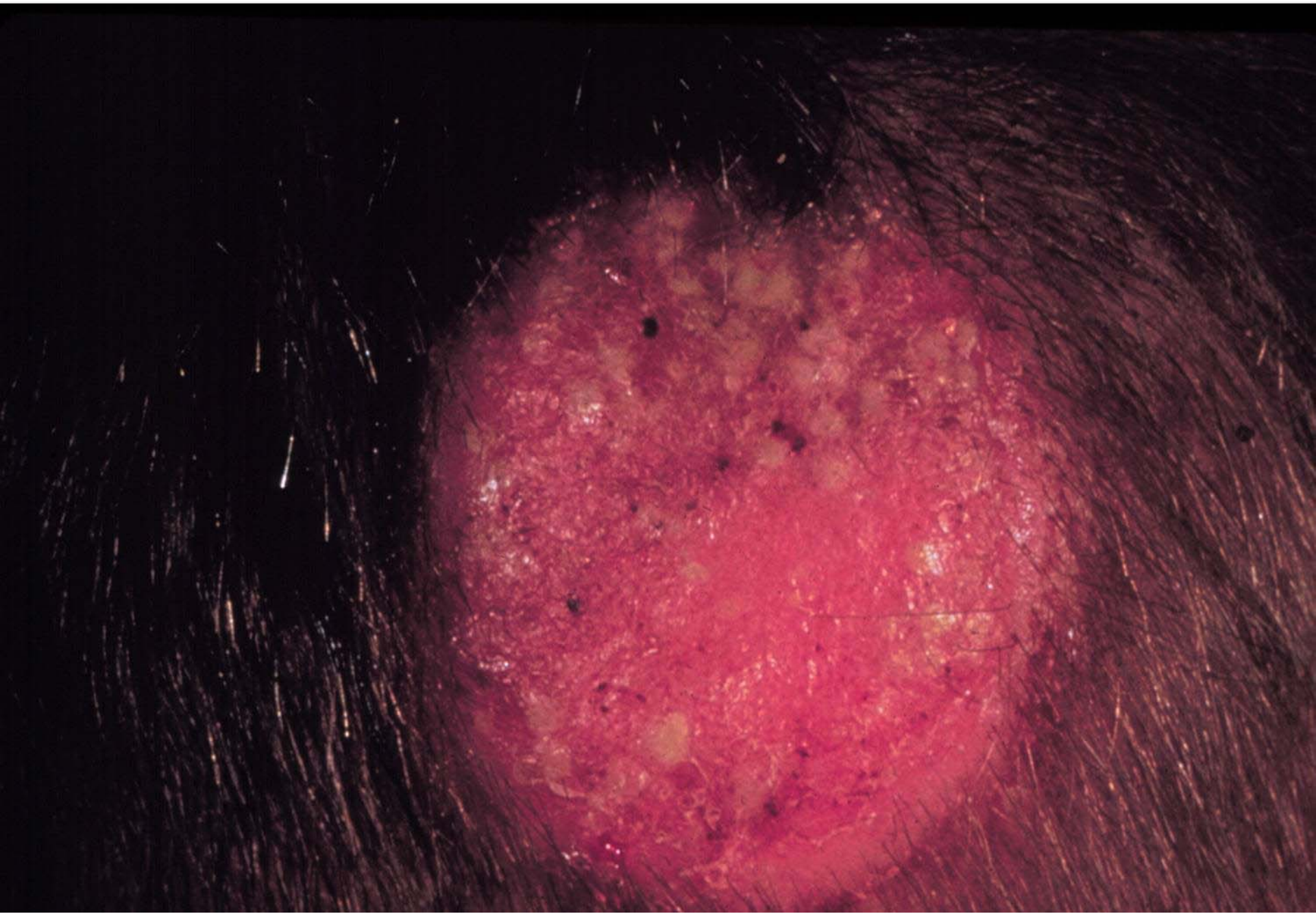
Infectious Dermatoses

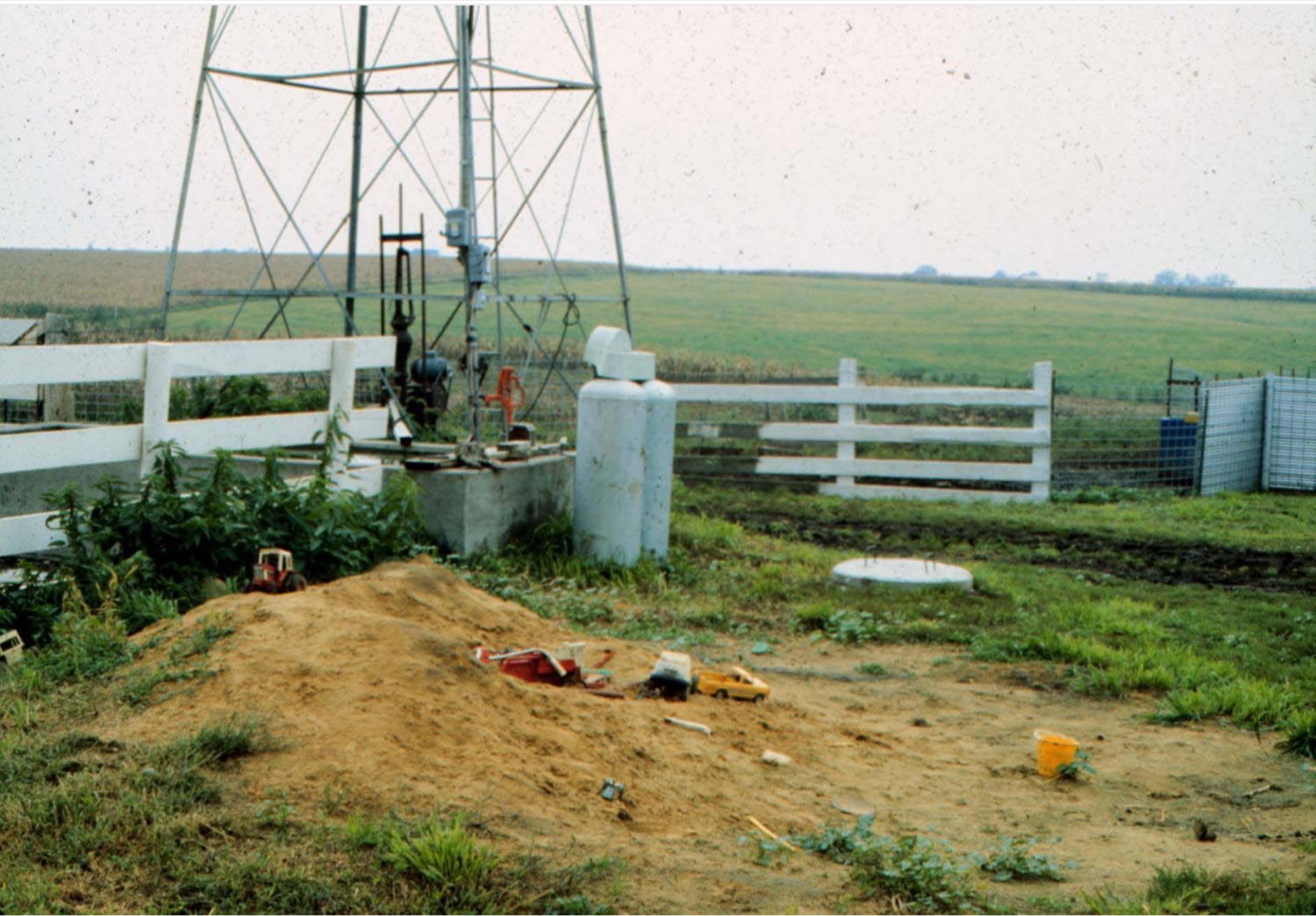
Infection by Dermatophytes

Orf

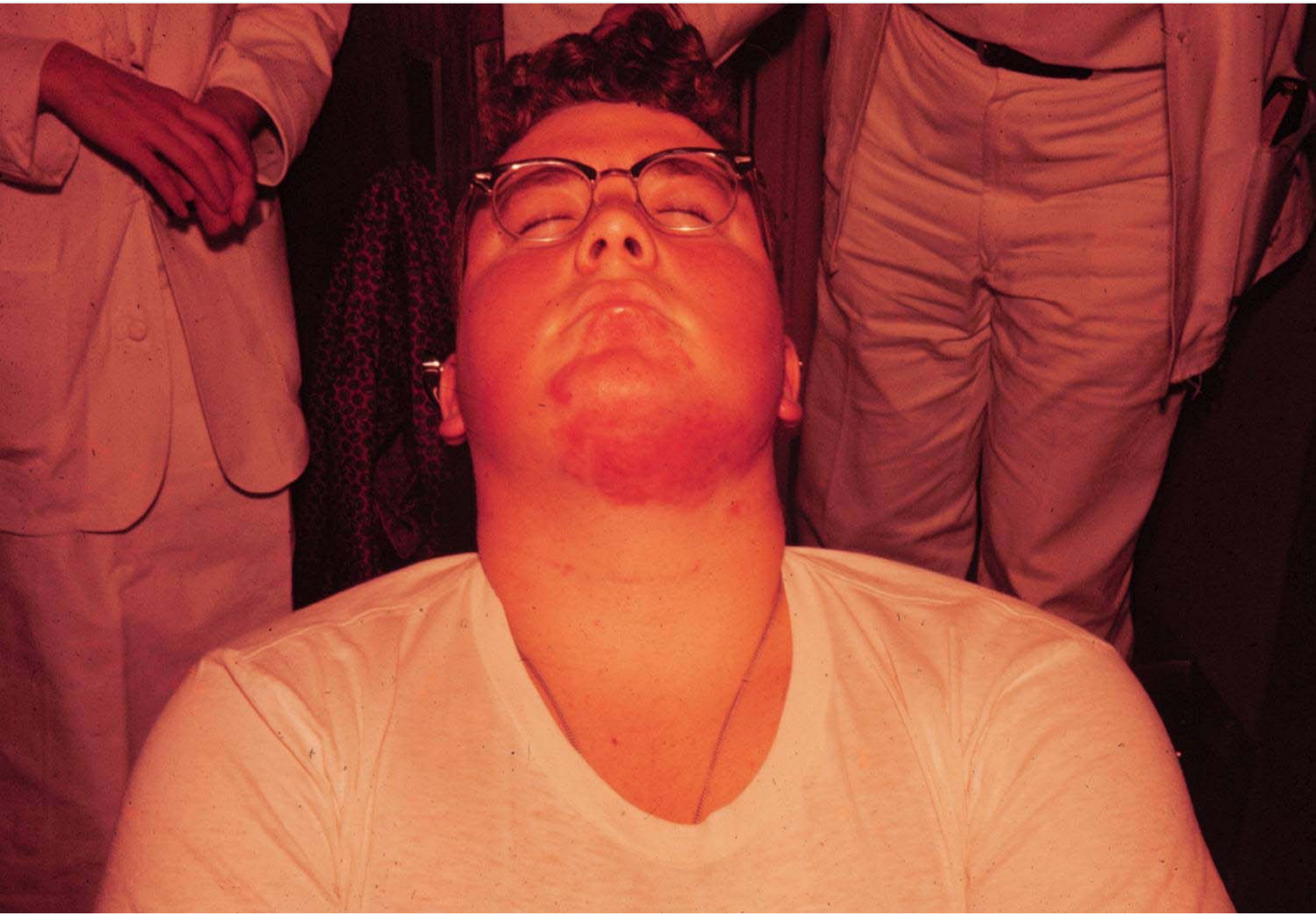
Milker's Nodule













Dermatophytic Infections

Trichophyton, spp.

+

Microsporum, spp.

Zoonotic Viral Infections of the Skin

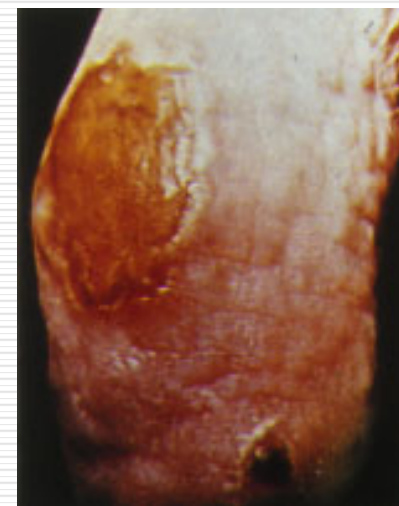
- Pseudo cow pox**
- Contagious Ecthyma “Orf”**







Figure 11: Umbilicated lesion and presence of inflammation in the unguisal folds.



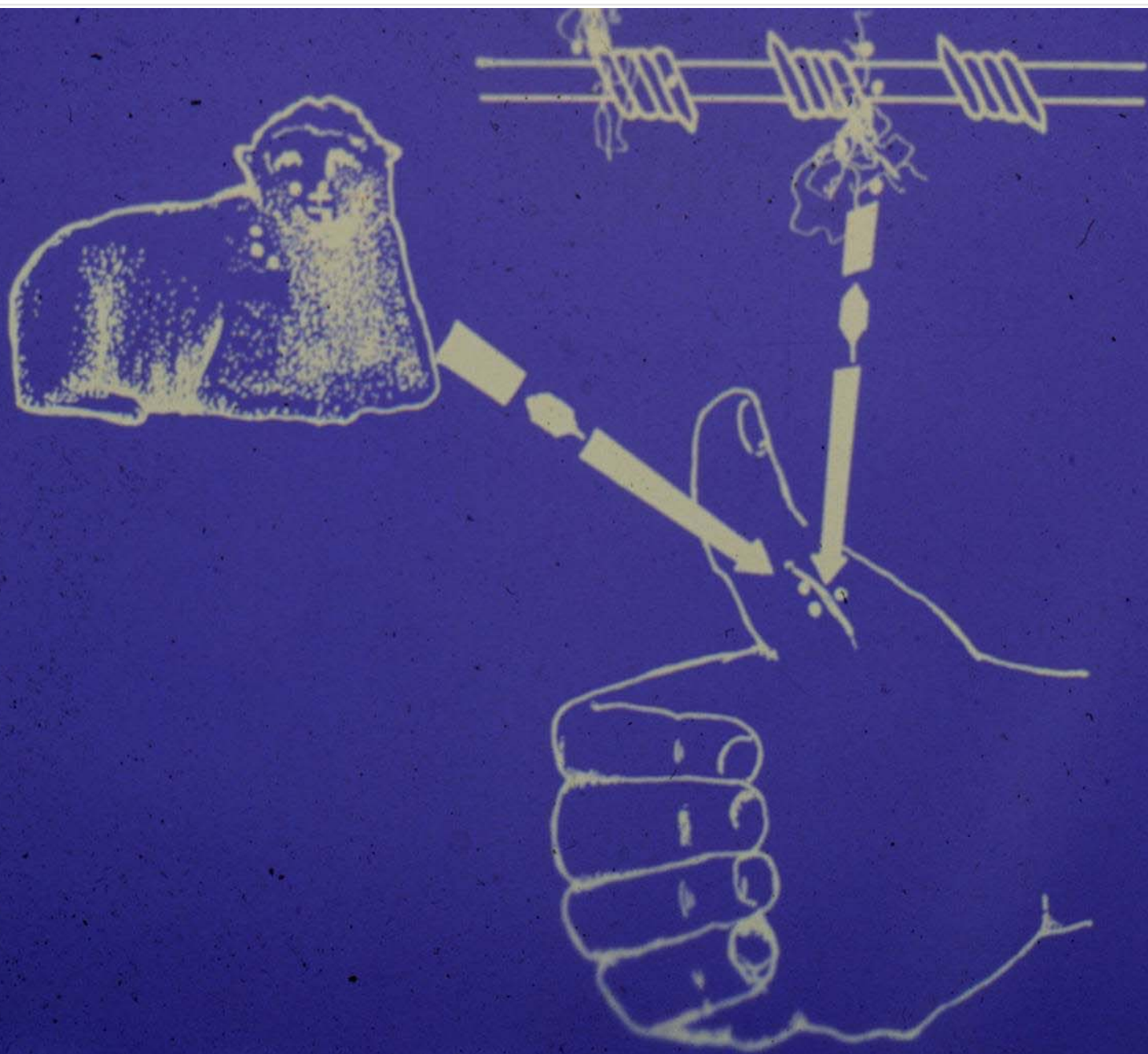




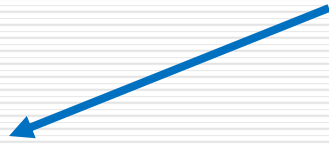
Live Vaccines





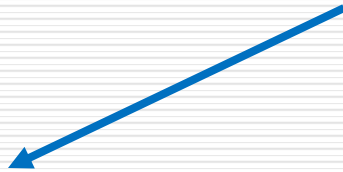


Dairy Zoonoses



- Dermatophytic Infections
- Milker's Nodule

Sheep Zoonoses



- Orf

Treatment

**Milker's Nodules and Orf = topical antibiotics
to prevent secondary bacterial infections**

Dermatophytes = Systemic Griseofulvin

Post-Quiz

You can spread poison ivy skin rash by scratching where it itches

1. True
2. False
3. Don't know

Most skin conditions in agriculture are caused by allergies

1. True
2. False
3. Don't know

Human beings cannot acquire animal ring worm infection

1. True
2. False
3. Don't know