

Russet mites



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- **Recognizing russet mite damage in the field**
 - **Look-alikes**
 - **Under the microscope—
russet mites vs others**





Several adjacent plants affected

Lower leaf necrosis, healthy top growth

Stem russeting, on relatively non-exposed stems

Russet mites on fresh market tomatoes



A photograph of a tomato field showing signs of plant stress. The plants are growing in rows with sandy soil between them. Several yellow circles are drawn on the image to highlight specific areas of concern: one on a stem, one on a cluster of leaves, and one on a cluster of tomatoes. A text box is overlaid on the image, stating "Russeting on stems & leaves, leaf necrosis".

Russeting on stems & leaves, leaf necrosis

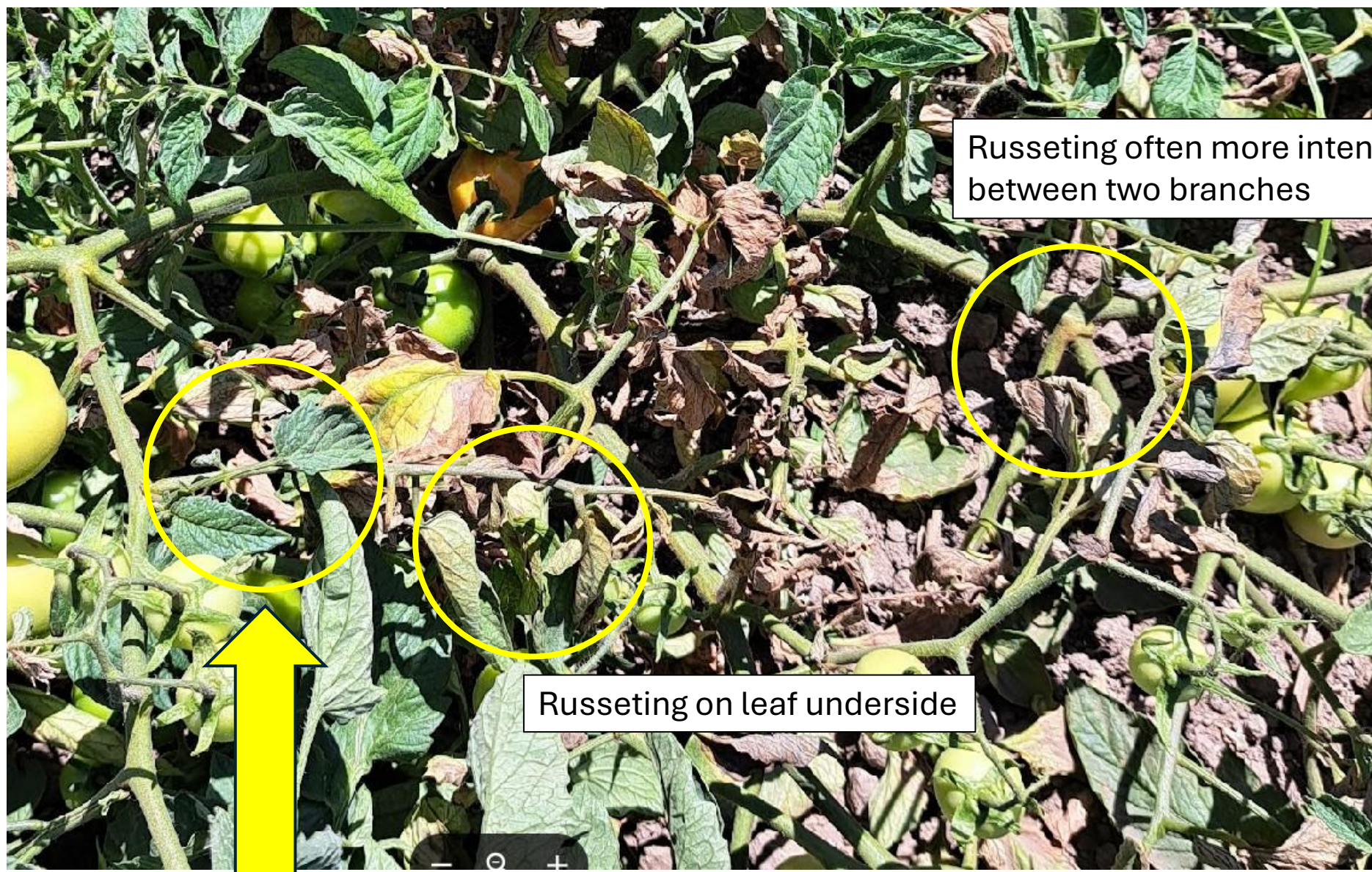






Petiole bronzing in a very active infestation



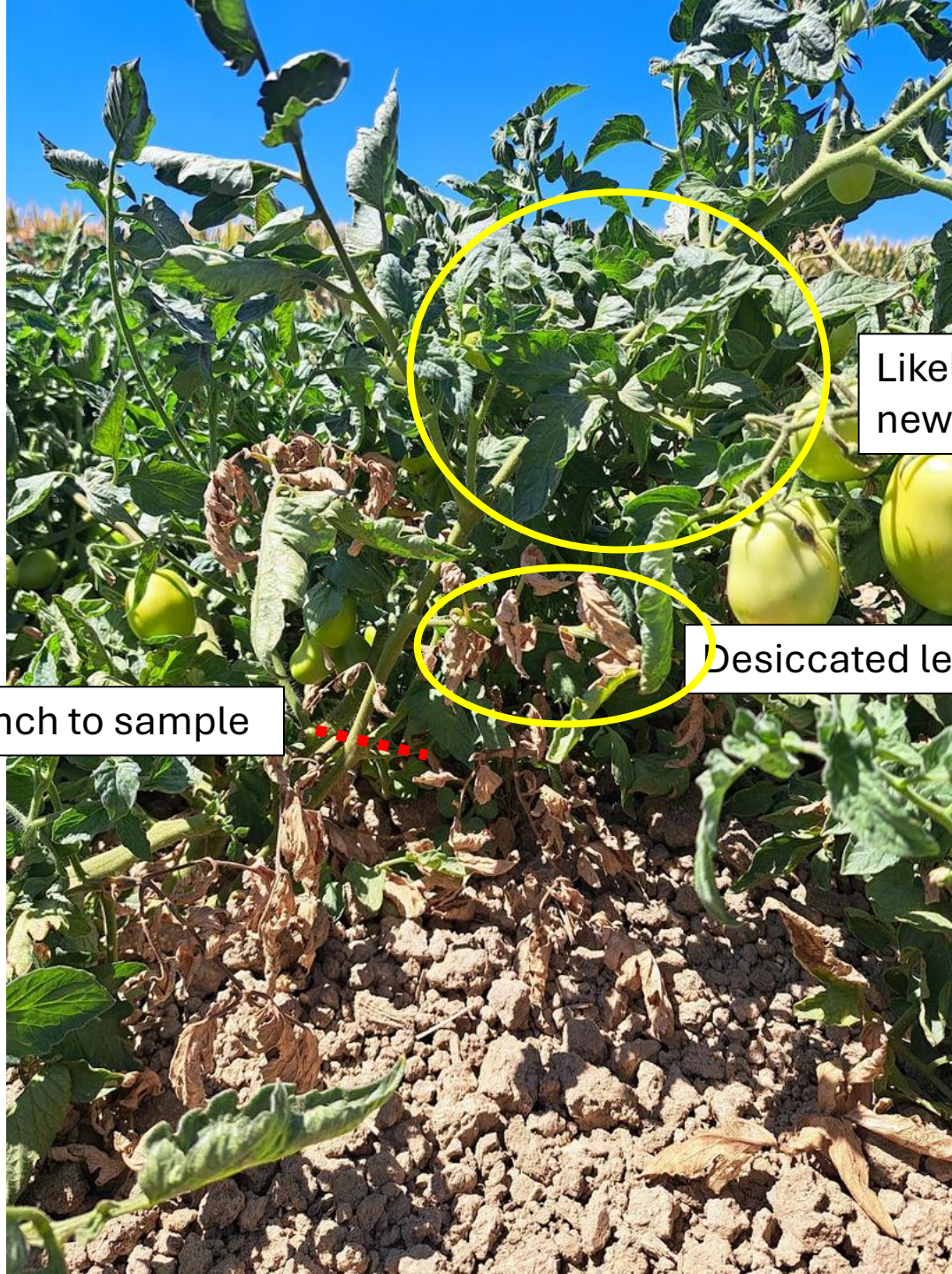


Russeting often more intense at junction between two branches

Russeting on leaf underside

Relatively healthy, non-symptomatic leaves located above a desiccated leaf are good candidates to sample to look for mites. Sometimes they can also be seen on stems





Likely most numerous and active in newer leaves, above damage

Desiccated leaves– will not see mites

A good branch to sample







If mites are blown in by the wind into full-canopy tomatoes, damage may be on the upper leaves



Local diseases that can sometimes look similar



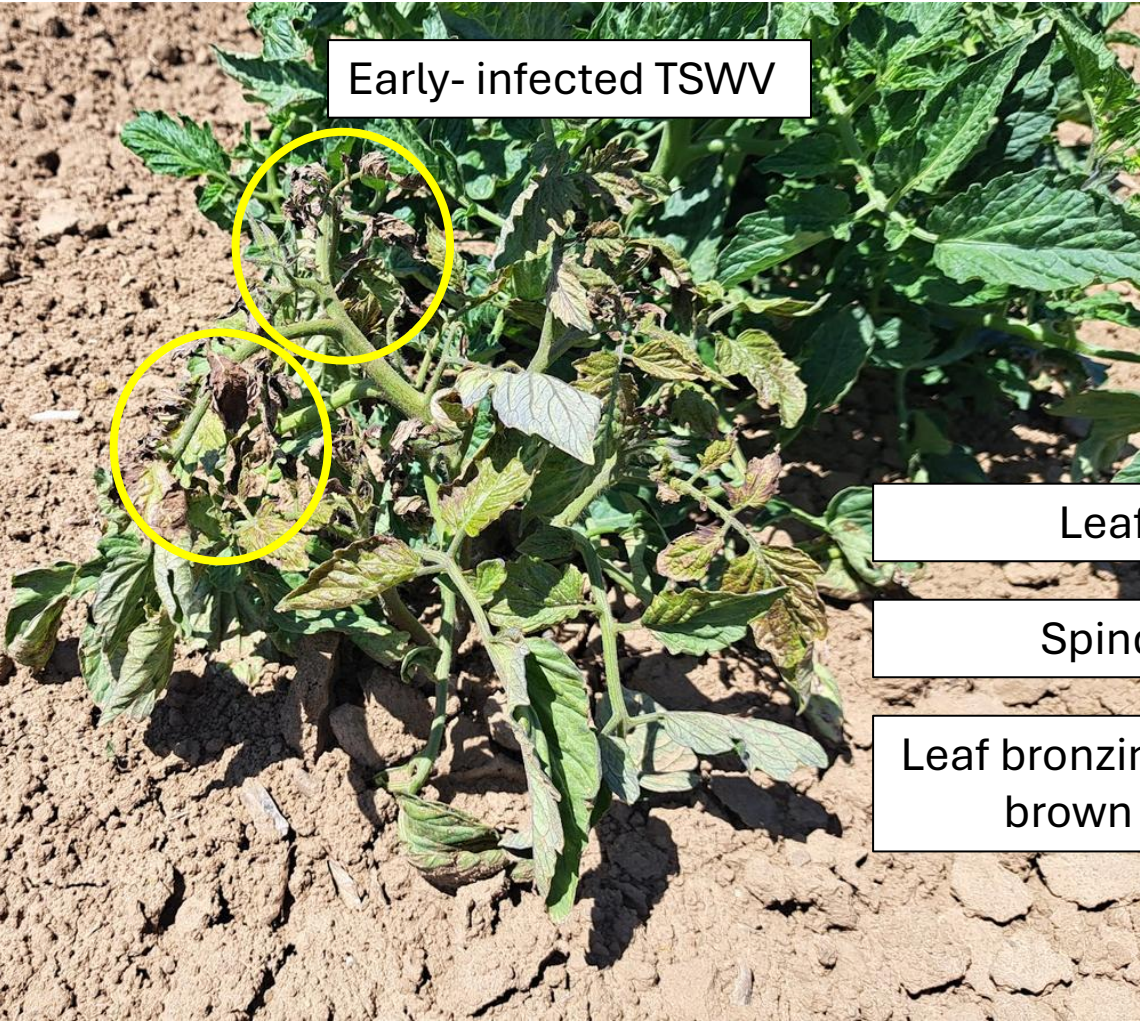
Russet mites



Tomato spotted wilt virus



Fusarium stem rot & decline (FRD)



Early- infected TSWV

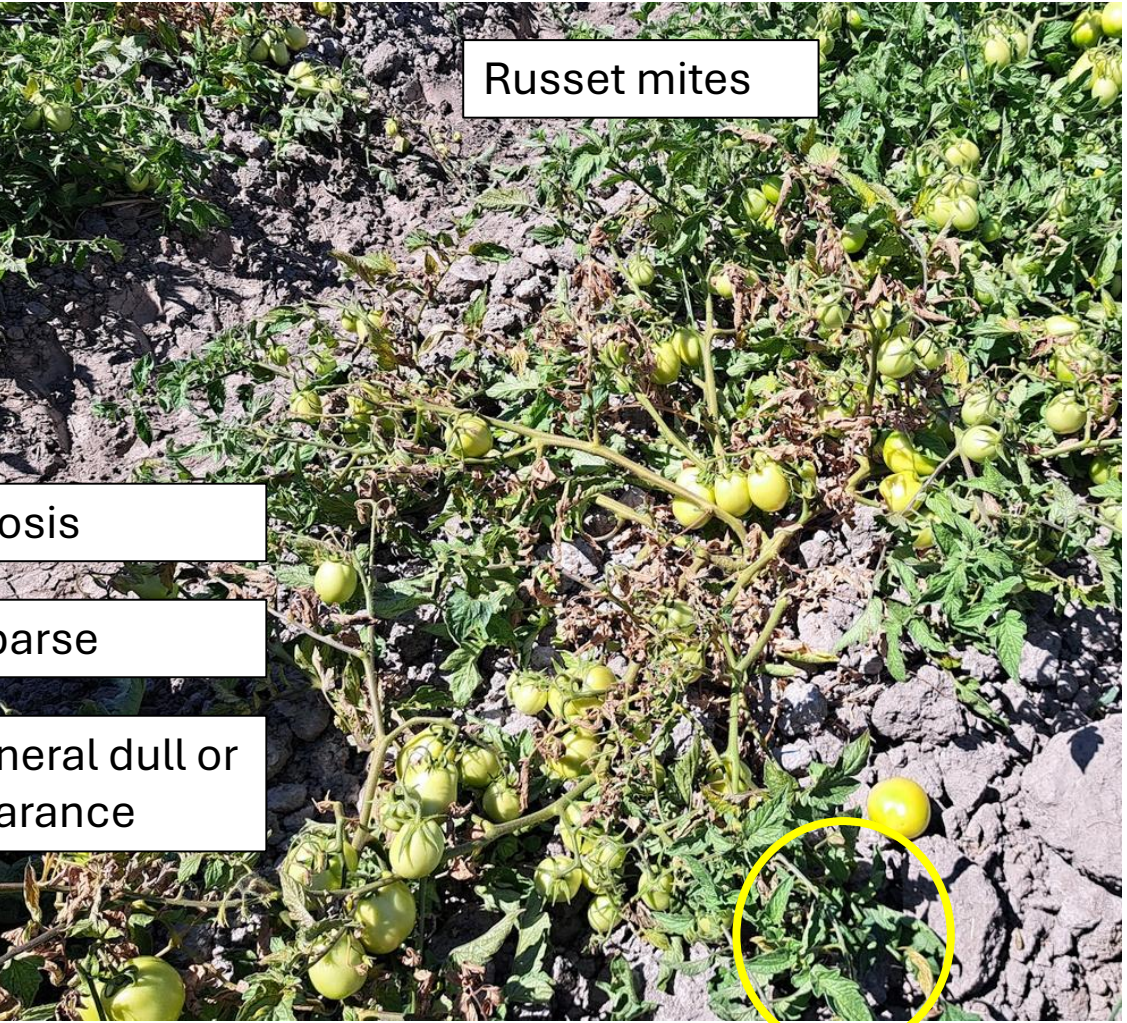
A photograph of a tomato plant in a field. Two yellow circles highlight the newest growth at the top of the plant, which shows signs of being affected by the virus. The leaves are green but show some discoloration and necrosis.

Leaf necrosis

Spindly, sparse

Leaf bronzing, general dull or brown appearance

- Newest growth tends to be most affected
- No stem russetting, though may have sunburn



Russet mites

A photograph of a tomato plant in a field. A yellow circle highlights a cluster of leaves that are severely affected by russet mites, showing extensive necrosis and discoloration. The plant is covered with many green tomatoes.

- Older growth often more affected
- Newest leaves come in healthy
 - Stem russetting
- Symptoms don't normally occur before there are fruit

Late-season TSWV “strike”

Necrotic foliage, but

- Tends to be more on the newest growth
- Mite damage is more uniform, TSWV more likely to have distinct lesions

Fruit may show symptoms. A good fruit to check is a small one close to affected area



Late season TSWV 'strike'– also causes foliar necrosis



“Trident-shaped” shoot dieback very characteristic of TSWV

Fruit symptoms (not always obvious!)



TSWV sometimes
forms ring-shape
lesions

Petiole streaking
occurs in some
varieties





Mites or spotted wilt?

Spotted wilt!

Sometimes it's very hard to tell! And co-infections can occur

Not much new green foliage present, can't tell if new leaves are healthy

Russetting on stems– but could it be sunburn?



Field test for TSWV is available

Also, look for ringspots on fruit



Fusarium stem rot & decline (FRD, aka falciforme) can also cause significant leaf necrosis

A common (but not universal) symptom:

- Necrotic leaflets turn purple, petiole stays green for awhile
- Tends to be newer leaves
- Bleaching between veins on non-necrotic new leaves is common



FRD



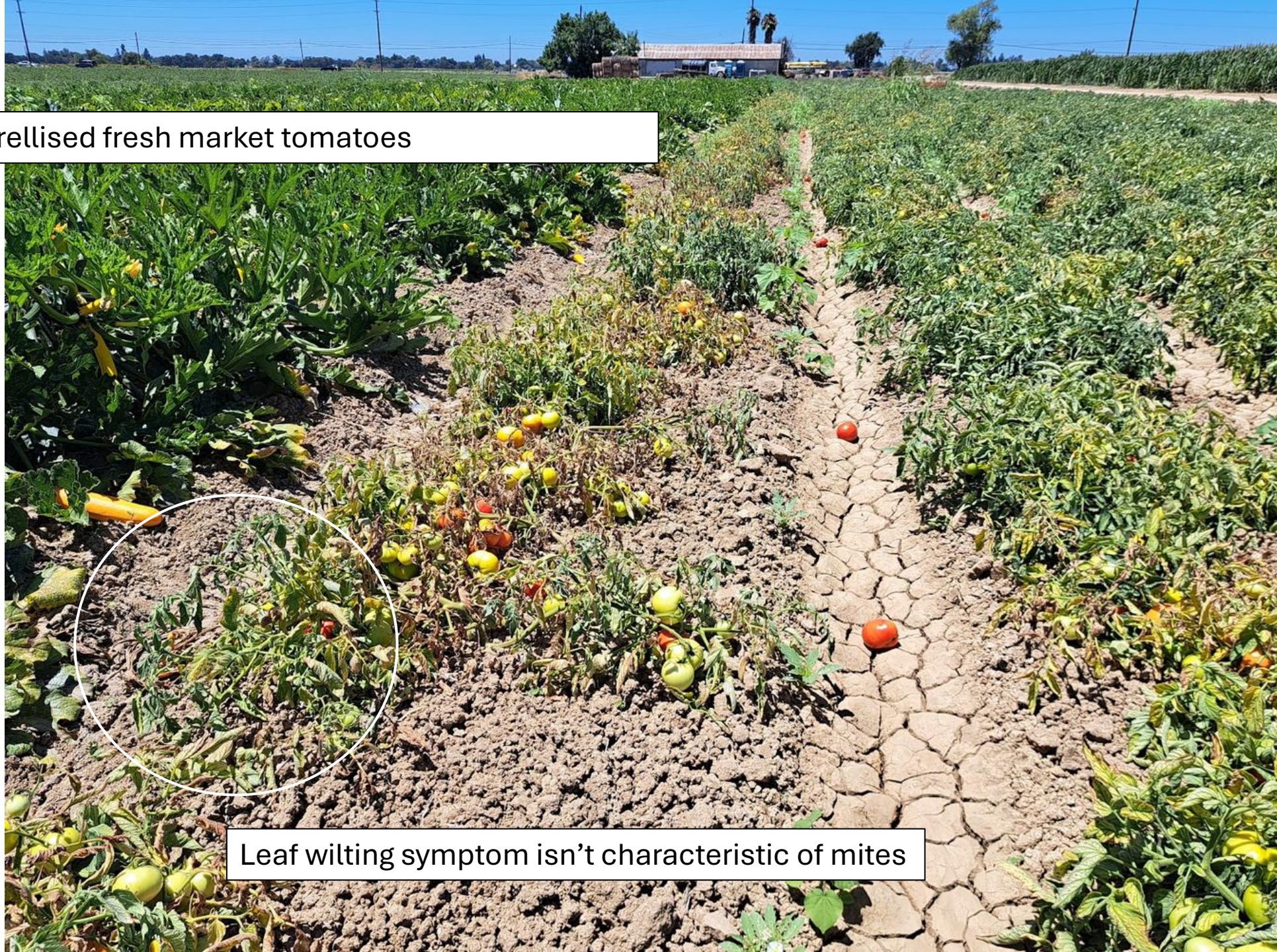
- Damage developed slowly
- Root or foot rot or vascular discoloration will be present

Russet mites, blown in late



- Rapidly spreading patches
- No evident vascular discoloration

FRD in non-trellised fresh market tomatoes



Leaf wilting symptom isn't characteristic of mites

FRD



- Full grown plants with good fruit set may be completely declined
- Look for bleached, bunching new leaves (doesn't always happen, but very strong indicator of FRD presence when it does)

IPM

- Field bindweed, solanaceous weeds like nightshade are both alternate hosts
- Weedy spring fields more likely to develop russet mite infestations
- Mites overwinter on weedy hosts. If russet mites keep coming back as a problem in a particular field, pay attention to managing weed hosts



If you suspect it might be russet mites...

- Can confirm presence by visual inspection with a hand lens or microscope
- Watch the affected area– rapid spread suggests mites
 - UC IPM suggests– inspect and flag affected areas, watch for spread
- Mites may be present but not spread much– more risk in hot weather, stressed plants



ID in the field is trickier!

Look for:

- Shape
- Glossiness
- Movement

There's a lot going on
on a tomato leaf, don't
be fooled!



Spider mites vs russet mites

Similar to russet mites

- Also like hot, dry weather, stressed plants
- Also begins on lower leaves

Unlike russet mites

- Cause stippling damage on leaves, rather than desiccation
- Do not cause stem bronzing
- May have webbing
- Affect a wide number of crops
- Can be seen with 10x lens (about twice as large as russet mites)



Predatory mites!!

Larger, transparent

Move more quickly than
russet or spider mites

Prey on both types of
mites, and their eggs

