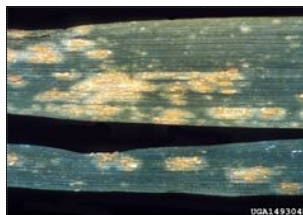
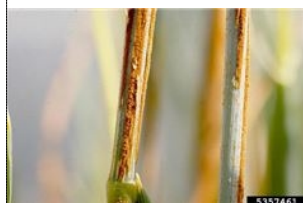


Stem rust of wheat

Puccinia graminis f. sp. Tritici



Stem rust wheat (University of Georgia Plant Pathology, Bugwood.org)



Stem rust of wheat symptoms (Howard F. Schwartz, Colorado State University, Bugwood.org)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> Use certified seeds from reliable sources such as KALRO. Early planting. Use resistant varieties that can tolerate the disease pressure such as Kenya Swara and Kenya Nyangumi. Uproot volunteer crops that could harbour the pathogen. Apply weed management measures as some grass weeds serve as alternative hosts. Rotate with non-host plants such as beans to break the disease cycle. Avoid walking through the field during wet weather to prevent disease spread from one plant to another. Work on healthy plots first then move to infected areas. 	<ul style="list-style-type: none"> Symptoms include: Reddish brown, powdery, elongated, blister-like pustules on leaves, glumes and awns. On leaves the rust develops mostly on the underside but may penetrate to the upperside. Black spores are produced firmly attached on leaves and stems towards end of season. Inspect all plant parts every 7-10 days from flag leaf emergence to early grain development. Consider direct control when orange pustules are observed on leaves of 4-5 plants. 	<ul style="list-style-type: none"> Remove and destroy old plants by burning. Use Trichotech WP at 1.25 g/L water every 2 weeks to one month depending on disease pressure. 	<ul style="list-style-type: none"> When using a pesticide, always wear protective clothing and follow the instructions on the product label. 	
			<ul style="list-style-type: none"> Do not use chemicals with the same mode of action year after year as this can lead to resistance. 	
			<ul style="list-style-type: none"> Always consult the most recent list of registered pesticides (PCPB). 	<ul style="list-style-type: none"> WHO Class III (moderately hazardous). PHI: 77 days. REI: 24 hrs.
			<ul style="list-style-type: none"> Spray Tebuconazole based fungicides such as Azimut 320 SC at a rate of 100 ml/20 L water. 	<ul style="list-style-type: none"> WHO Class III (slightly hazardous). PHI: 30 days, REI: 12 hours. Repeat after 7-14 days.
			<ul style="list-style-type: none"> Spray Flusilazole/Carbendazim based fungicides such as Discovery 400SC at a rate of 10 ml/20 L of water. 	<ul style="list-style-type: none"> WHO Class III (slightly hazardous). PHI: 58 days. REI: 24 hours.
			<ul style="list-style-type: none"> Spray Prothioconazole/ Tebuconazole based fungicides such as Prosaro 250 EC at a rate of 150-300 ml/Ha. 	

Kenya

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