Supplementary Data

Table Supplemental S1. Dates of image capture for Sentinel 2 a+b and Planet Scope downloaded from Earth Explorer portal of the United States Geological Survey (USGS, https://earthexplorer.usgs.gov).

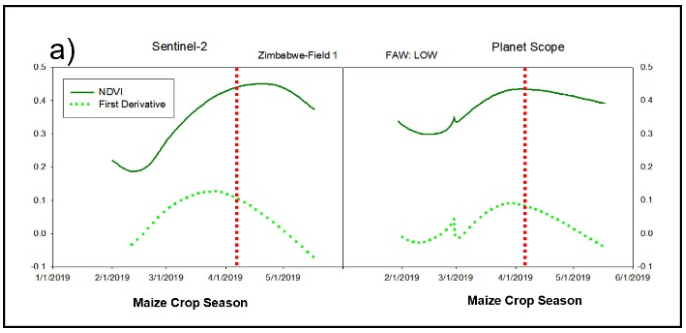
Zimbabwe		Kenya	
Sentinel 2 a+ b days	Planet Scope days	Sentinel 2 a+ b days	Planet Scope days
2/1/2019	2/1/2019	4/12/2019	4/11/2019
2/11/2019	2/11/2019	5/2/2019	4/16/2019
2/21/2019	2/24/2019	5/7/2019	5/3/2019
x	2/28/2019	x	5/22/2019
3/3/2019	3/3/2019	x	5/27/2019
3/28/2019	3/29/2019	x	5/31/2019
4/27/2019	x	7/1/2019	6/16/2019
5/17/2019	5/17/2019	7/6/2019	7/14/2019

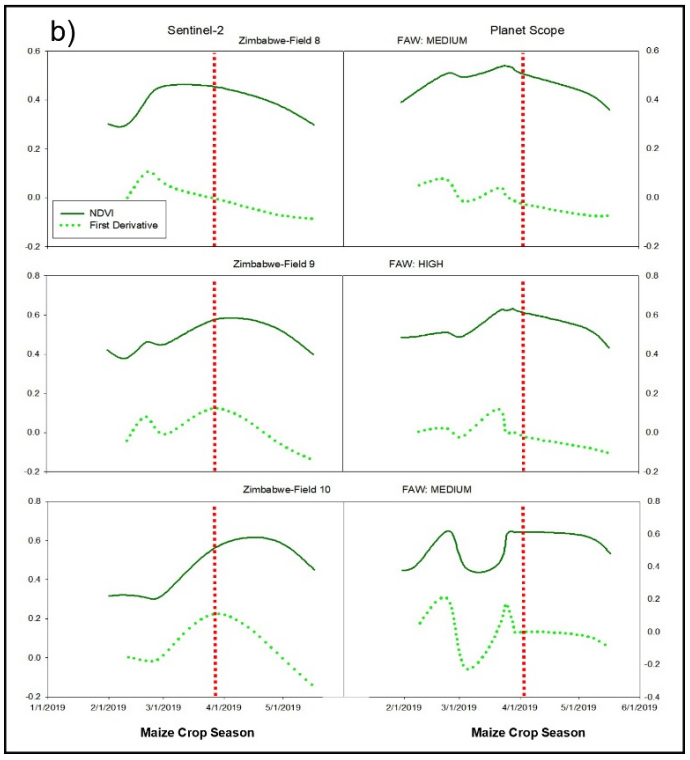
Table Supplemental S2. Relevant data taken from each field that we visited, using the FAMEWS app.

Country	Zone	Field	approx. data of sowing	Crop Growth Stage	BBCH stages	Farming System	Intercrop	Level of FAW	Control
Zimbabwe	Mashonaland E	6	28 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	pumpkin	LOW	Ash
	Masvingo	8	10 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	pumpkin	LOW	Pestiside
	Masvingo	9	7 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Rotation	monocrop	HIGH	Pestiside
	Masvingo	10	5 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Rotation	monocrop	LOW	Pestiside
	Masvingo	11	5 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Rotation	monocrop	LOW	Pestiside
	Masvingo	12	4 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	common beans	MEDIUM	none
	Masvingo	13	9 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Rotation	monocrop	MEDIUM	Pestiside
	Masvingo	14	9 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Rotation	monocrop	HIGH	Pestiside
	Masvingo	15	9 of January	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Rotation	monocrop	MEDIUM	Pestiside
Tanzania	Arusha	1	middle April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Seasonal	monocrop	HIGH	hand picking
	Arusha	2	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	MEDIUM	not know
	Arusha	3	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	LOW	not know

	Arusha	4	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	MEDIUM	not know
	Arusha	5	early April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	common beans	LOW	not know
	Arusha	6	early April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	common beans	LOW	not know
	Arusha	7	early April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	sunflower	LOW	not know
	Arusha	8	early may	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	HIGH	not know
	Arusha	9	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	LOW	Pestiside
	Arusha	10	early April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	common beans	LOW	not know
	Arusha	11	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	LOW	not know
	Arusha	12	middle April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	sunflowers	LOW	not know
Kenya	Busia	1	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	MEDIUM	Ash
	Busia	2	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	LOW	Ash
	Busia	3	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	LOW	none
	Busia	4	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	LOW	Ash
	Busia	5	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	ground nuts	LOW	Ash

Busia	6	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	MEDIUM	none
Busia	1	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	ground nuts	LOW	none
Busia	2	early May	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	HIGH	none
Busia	4	middle April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	LOW	none
Busia	5	early April	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Intercropping	ground nuts	MEDIUM	none
Busia	1	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	HIGH	Ash
Busia	2	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	HIGH	Ash
Busia	5	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	HIGH	none
Busia	6	early May	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	HIGH	none
Busia	1	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Intercropping	common beans	MEDIUM	Pestiside
Busia	3	late March	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Seasonal	monocrop	LOW	none
Busia	4	late March	vegetative-reproductive	Principal growth stage 6: Flowering, anthesis	Seasonal	monocrop	MEDIUM	none
Busia	5	early April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	MEDIUM	none
Busia	8	late April	vegetative	Principal growth stage 5: Inflorescence emergence, heading	Seasonal	monocrop	HIGH	none


a)
Sentinel-2
Zimbabwe-Field 1
FAW: LOW
Planet Scope
NDVI
First Derivative
Maize Crop Season
Maize Crop Season


b)
Sentinel-2
Zimbabwe-Field 8
FAW: MEDIUM
Planet Scope
NDVI
First Derivative
Zimbabwe-Field 9
FAW: HIGH
Zimbabwe-Field 10
FAW: MEDIUM
Maize Crop Season
Maize Crop Season

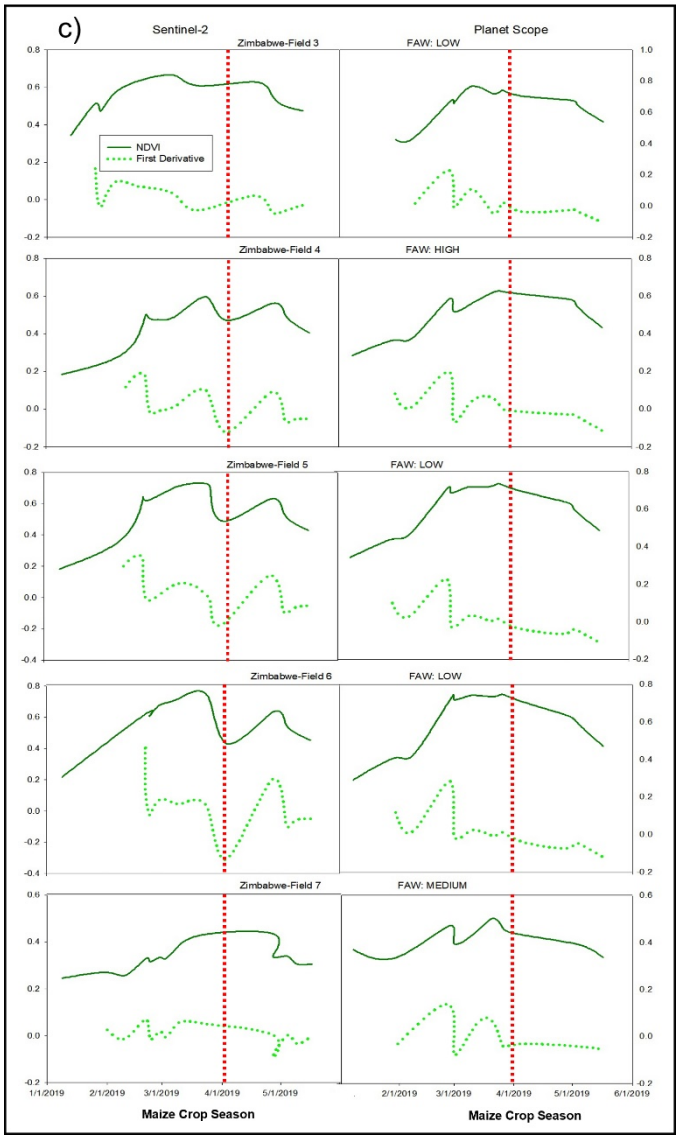


Figure S1. (**a, b & c**) NDVI curves of vegetation from Zimbabwe (continue green line) and the first derivative of the NDVI curves (dashed light green line) were taken from Sentinel 2 a+b (left) and Planet Scope (right) along the first season of maize from January until end march/ April. The field presented three levels of infestations: LOW, MEDIUM, and HIGH. The red line is the day that we were in the field taking the data from 30 of March to 5 of April of 2019. X-axis (left) values between 0-0.8 belong to the NDVI index and X-axis (right) values between -0.2-0.8 belong to NDVI first derivative. Y-axis belongs to the maize crop season from the sowing day to harvest day.

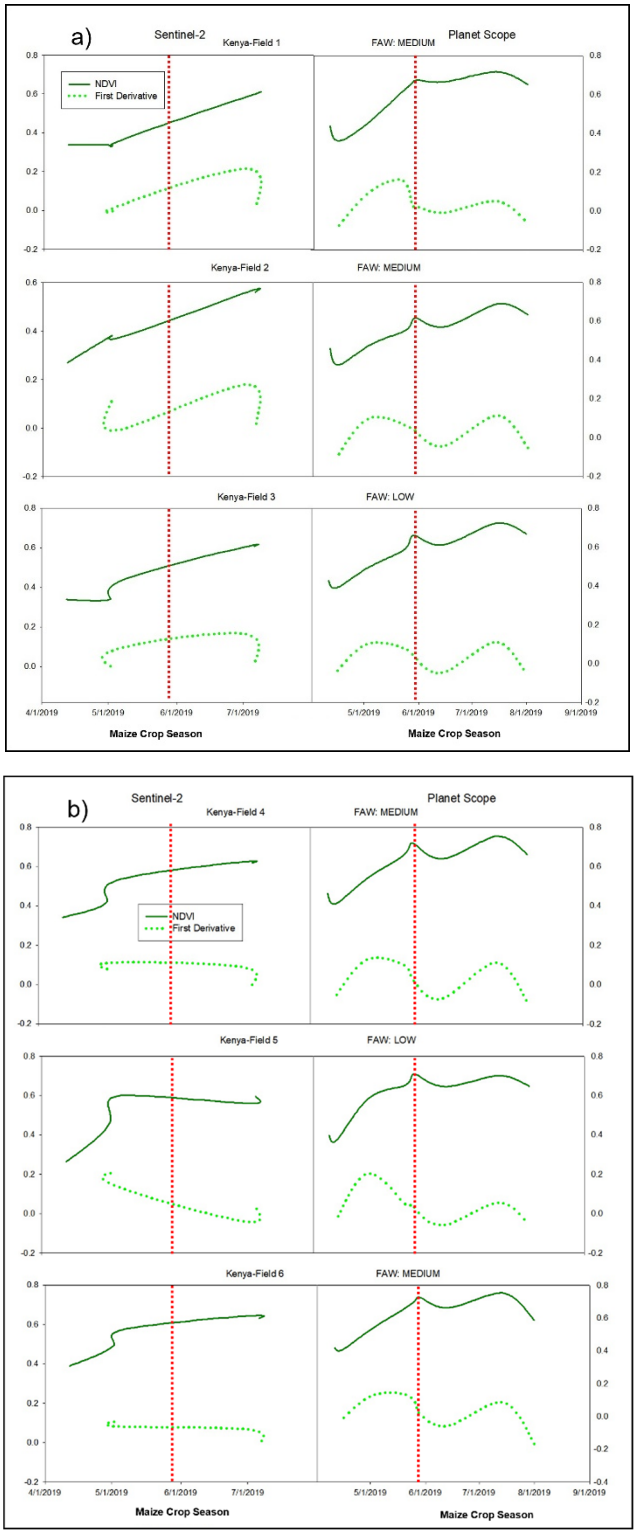


Figure S2. (a & b) NDVI curves of vegetation from Kenya (continue green line) and the first derivative of the NDVI curves (dashed light green line) were taken from Sentinel 2 a+b (left) and Planet Scope (right) along the first season of maize from the end of April until end of July. The field presented three levels of infestations: LOW, MEDIUM, and HIGH. The red line is the day that we were in the field taking the data on the 27 of May of 2019. X-axis (left) values between 0-0.8 belong to the NDVI index and X-axis (right) values between -0.2-0.8 belong to NDVI first derivative. Y-axis belongs to the maize crop season from the sowing day to harvest day.

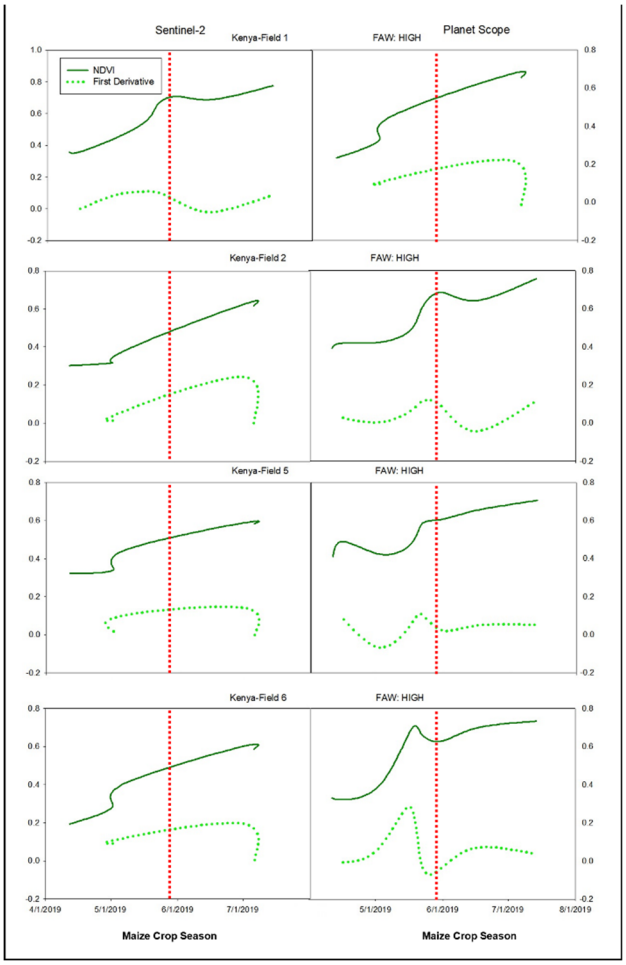


Figure S3. NDVI curves of vegetation from Kenya (continue green line) and the first derivative of the NDVI curves (dashed light green line) were taken from Sentinel 2 a+b (left) and Planet Scope (right) along the first season of maize from the end of April until end of July. The field presented three levels of infestations: LOW, MEDIUM, and HIGH. The red line is the day that we were in the field taking the data on the 29 of May of 2019. X-axis (left) values between 0-0.8 belong to the NDVI index and X-axis (right) values between -0.2-0.8 belong to NDVI first derivative. Y-axis belongs to the maize crop season from the sowing day to harvest day.

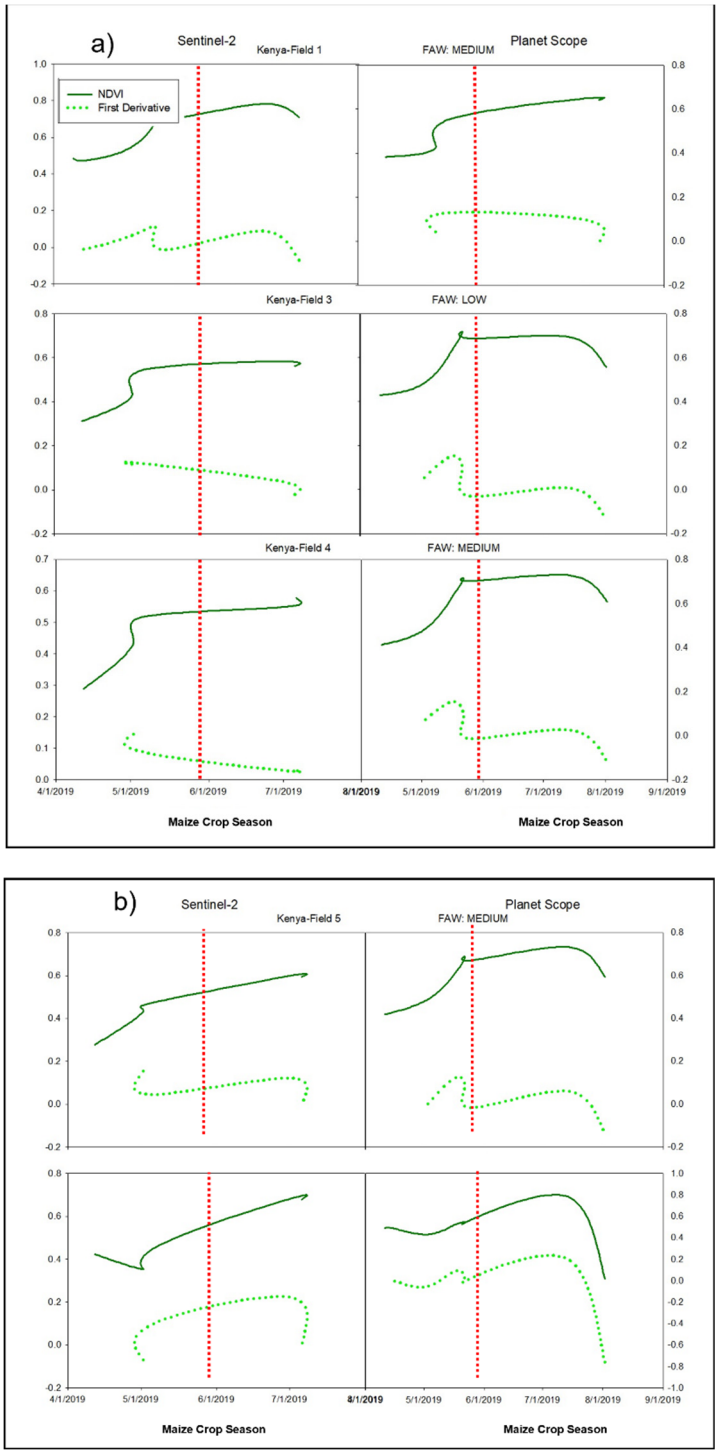


Figure S4. NDVI curves of vegetation from Kenya (continue green line) and the first derivative of the NDVI curves (dashed light green line) were taken from Sentinel 2 a+b (left) and Planet Scope (right) along the first season of maize from the end of April until end of July. The field presented three levels of infestations: LOW, MEDIUM, and HIGH. The red line is the day that we were in the field taking the data on the 30 of May of 2019. X-axis (left) values between 0-0.8 belong to the NDVI index and X-axis (right) values between -0.2-0.8 belong to NDVI first derivative. Y-axis belongs to the maize crop season from the sowing day to harvest day.