a.

b.

c.
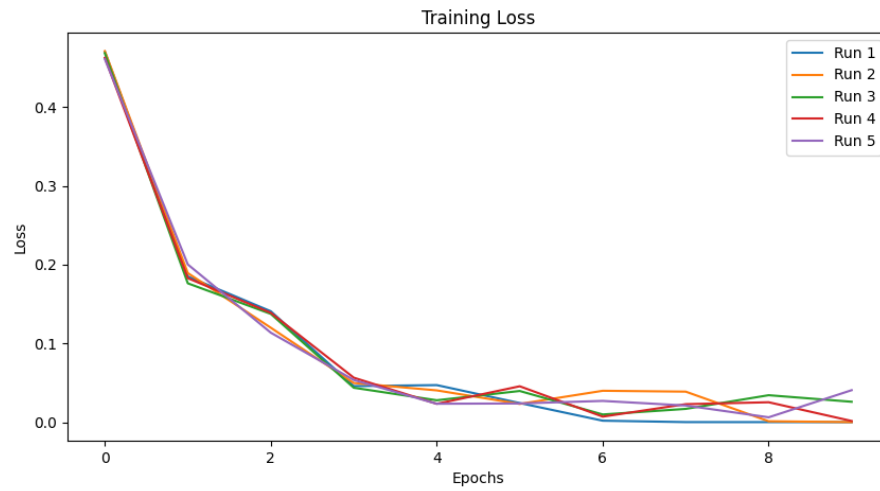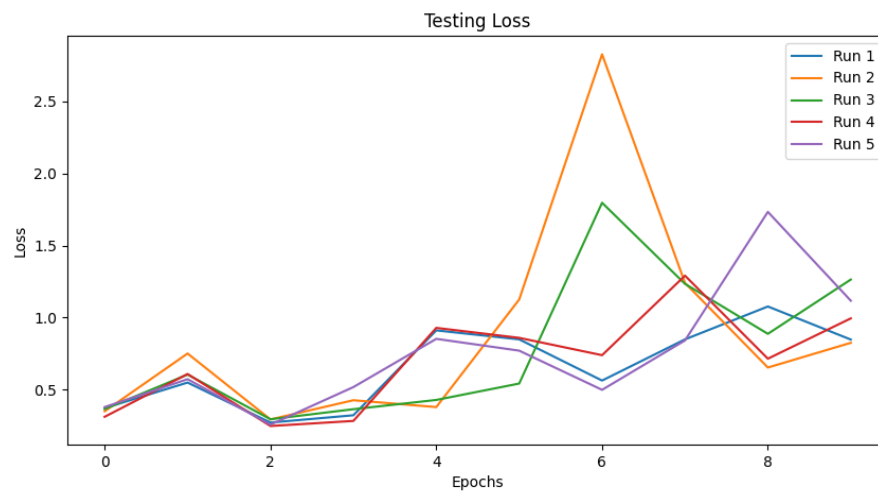
Figure S1. GLS_net performance (a) GLS_net upon the IF training set across 5 runs of 10 epochs (b) GLS_net performance upon the IF testing set across 5 runs of 10 epochs. (c) Best GLS_net model performance upon the IF testing and training set across 10 epochs.

a.

b.

c.

Figure S2. GLS_net_pv performance (a) GLS_net_pv performance upon the PV training set across 5 runs of 10 epochs (b) GLS_net_pv performance upon the PV testing set across 5 runs of 10 epochs (c) Best GLS_net_pv performance upon the PV training and testing set across 10 epochs.

Supplementary Datafile: Deep learning diagnostics of gray leaf spot in maize under mixed disease field conditions, Craze et al. Plants 2022

Table S1. Detailed leafRCNN performance upon the IFL testing set

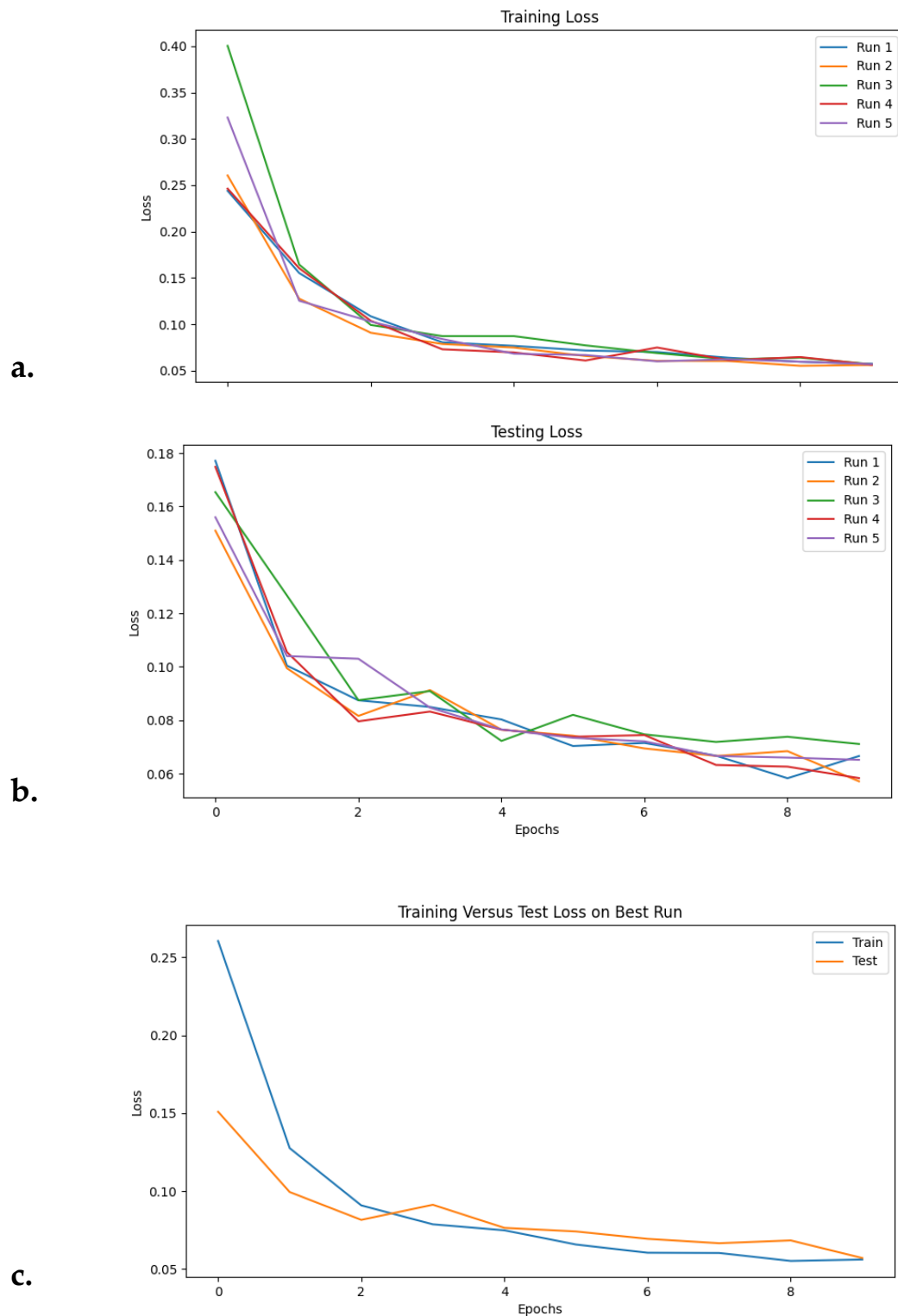| Metric	IoU	maxDets	maxDets	Score
Bounding Box				
Average Precision	0.50:0.95	all	100	0.990
Average Precision	0.50	all	100	0.899
Average Precision	0.75	all	100	0.990
Average Precision	0.50:0.95	small	100	0.990
Average Precision	0.50:0.95	med	100	0.899
Average Precision	0.50:0.95	large	100	0.990
Average Recall	0.50:0.95	all	1	0.990
Average Recall	0.50:0.95	small	100	0.899
Average Recall	0.50:0.95	med	100	0.990
Average Recall	0.50:0.95	large	100	0.939
Segmentation (Mask)				
Average Precision	0.50:0.95	all	100	0.923
Average Precision	0.50	all	100	1.000
Average Precision	0.75	all	100	0.977
Average Precision	0.50:0.95	large	100	0.923
Average Recall	0.50:0.95	all	1	0.942
Average Recall	0.50:0.95	large	100	0.944

Area = Indicates the area in which AR and AP values were calculated. Since leaves in the IFL dataset are quite large and take up most of the area in a image, only AP and AR values for the entire image are shown here
maxDets = The maximum number of predicted instances that will be considered. For example: An image may contain 400 predicted instances of class A. Of these, 100 instances of class A will be randomly selected and assessed. The IFL dataset only contains a single instance in each image.
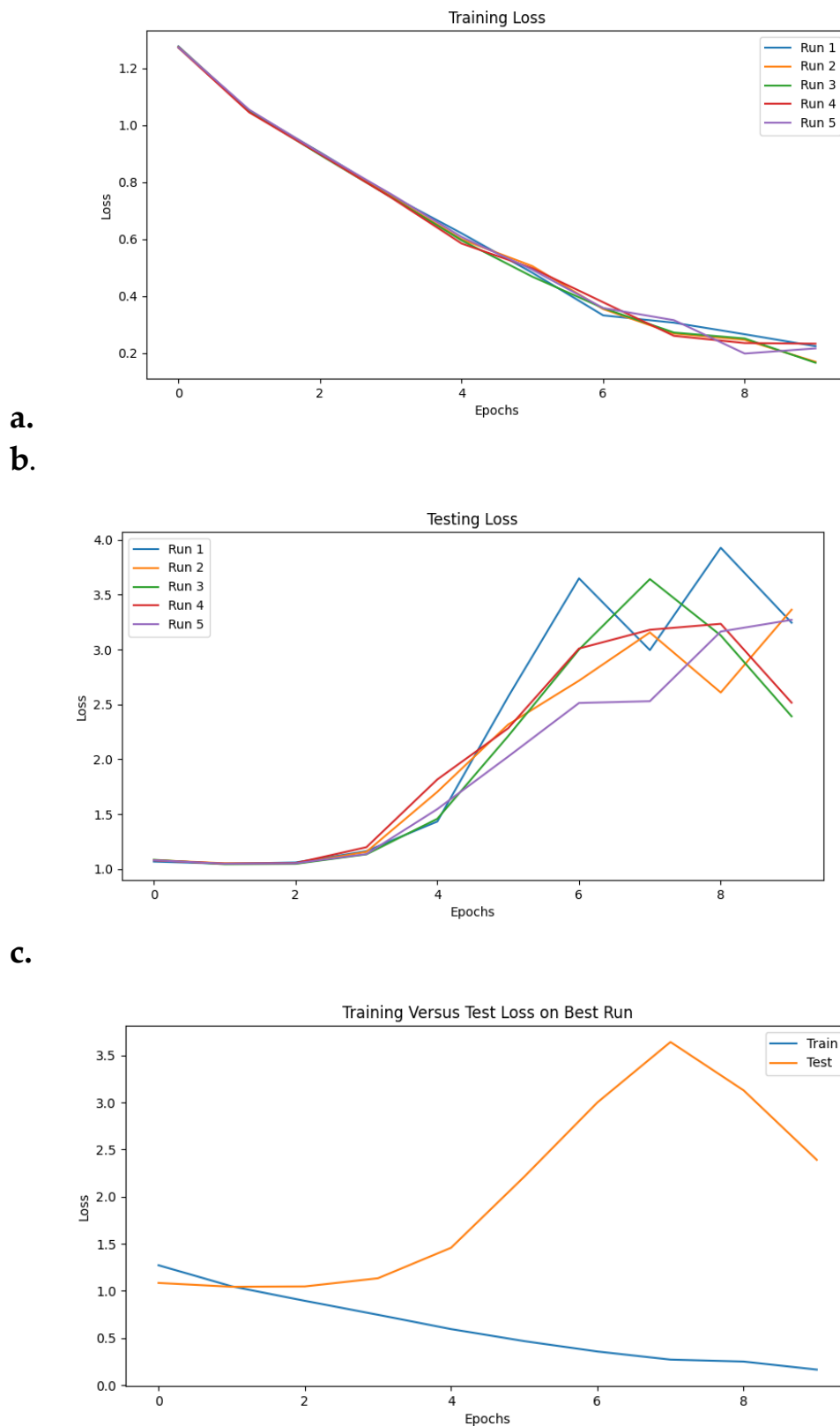
Table S2. leafRCNN loss upon the IFL testing set

Best Loss*	Average Best Loss*	Best Loss Standard Deviation*
0.0571	0.062	0.0308

*Results are from five separate runs of 10 epochs each.

Supplementary Datafile: Deep learning diagnostics of gray leaf spot in maize under mixed disease field conditions, Craze et al. Plants 2022

Figure S3. leafRCNN performance. (a) leafRCNN performance upon the IFL testing set across 5 separate runs of 10 epochs (b) leafRCNN performance upon the IFL training set across 5 separate runs of 10 epochs (c) Best leafRCNN model performance upon the IFL testing and training set across 10 epochs.

Supplementary Datafile: Deep learning diagnostics of gray leaf spot in maize under mixed disease field conditions, Craze et al. Plants 2022

Figure S4. GLS_net_noBackground performance (a) GLS_net_noBackground performance upon the IFNB training set across 5 runs of 10 epochs. (b) GLS_net_noBackground performance upon the IFNB testing set across 5 runs of 10 epochs. (c) Best GLS_net_noBackground performance upon the IFNB training and testing set across 10 epochs.