

Model Report: CNN-BiLSTM Ensemble (5-seed)

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Script: /home/mmann1123/Documents/github/South\_Africa\_Crop\_Comp/deep\_learn/src/Deep Learning/Pixel\_Field\_Lev

Data Split:

```
train_count: 5407549
val_count: 600899
test_count: 1531914
random_seed: 42
split_method: fid-wise
```

Metrics (test set):

```
Accuracy: 0.7694
Cohen Kappa: 0.6957
F1 Weighted: 0.7683
F1 Macro: 0.7264
```

Hyperparameters:

```
num_models: 5
conv_filters: 64
lstm_hidden: 64
kernel_size: 5
dropout: 0.3
learning_rate: 0.001
epochs: 25
batch_size: 1024
loss: FocalLoss(gamma=2.0)
```

## Per-Class Metrics

Class	Precision	Recall	F1-Score	Support
Barley	0.676	0.742	0.708	292673
Canola	0.892	0.843	0.867	234975
Lucerne/Medics	0.883	0.888	0.886	562484
Small grain grazing	0.568	0.469	0.514	157911
Wheat	0.648	0.668	0.658	283871

# Confusion Matrix

