ผลการทดสอบประสิทธิภาพของ Regression Algorithm

กลุ่ม Brazil

จัดทำโดย

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นายพศวัต คำภีระ 6510450704

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นายกฤตภาส วรรณวิไล 6510450151

เสนอ

รศ.ดร.นวลวรรณ สุนทรภิษัช

Dataset

- Organic.csv (optimize จาก Brazil.csv)
- Conventional.csv (optimize จาก Brazil.csv)
- Brazil.csv (optimize จาก Apple.csv)
- Apple.csv

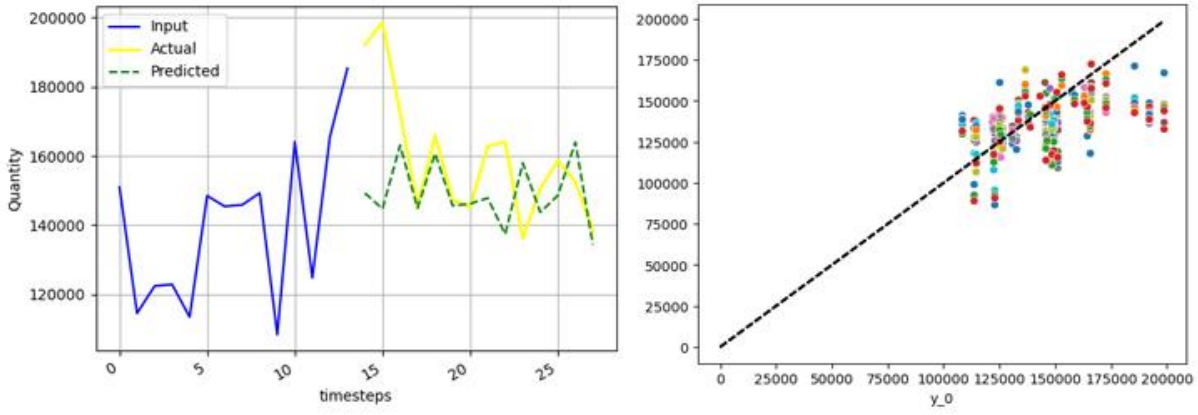
Model

1. Linear Regression

1.1 Conventional

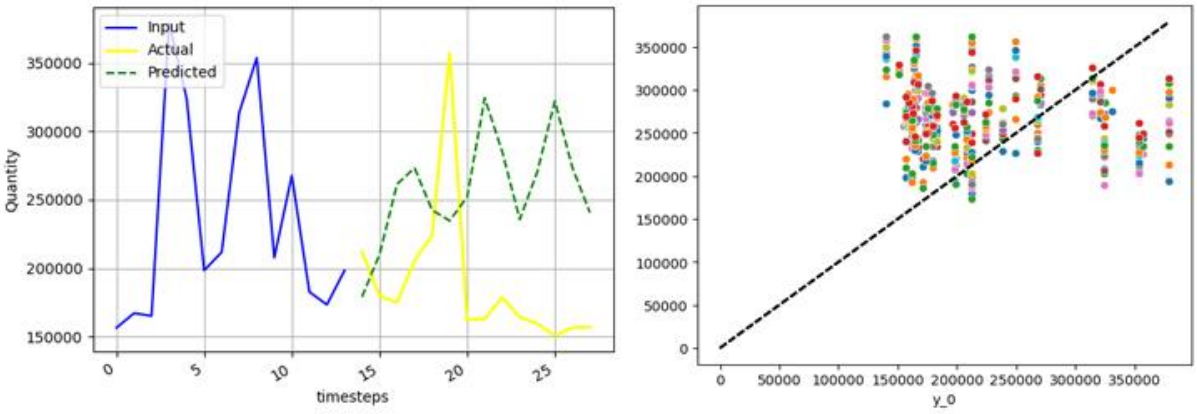
1.1.1 Envi

```
Mean Squared Error (Envi): 481500422.35358316
Mean Absolute Error (Envi): 16901.37280886553
R-squared (Test score) 0.11318713572768584
Train score 0.22729496931015428
```



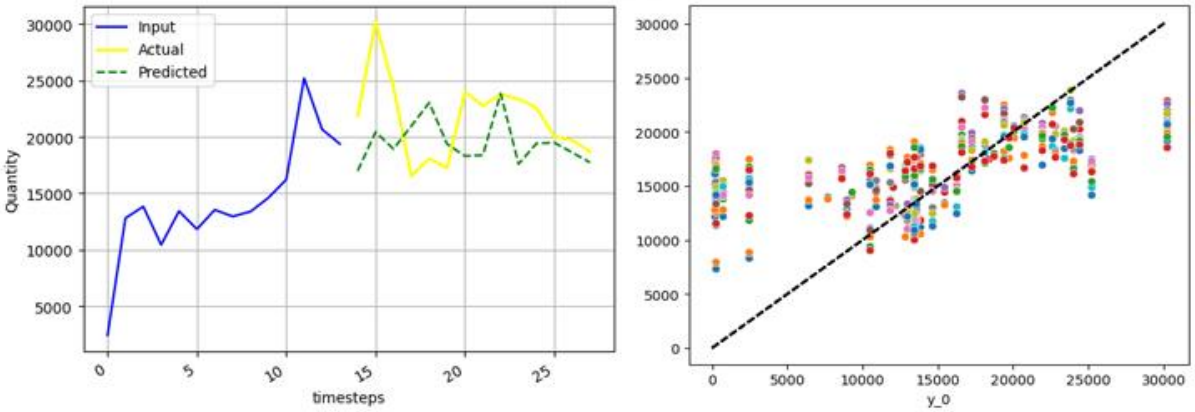
1.1.2 Fuji

```
Mean Squared Error (Fuji): 8903716062.464695
Mean Absolute Error (Fuji): 80911.8288830275
R-squared (Test score) -0.9986255071027909
Train score 0.5610776611481828
```



1.1.3 Gala

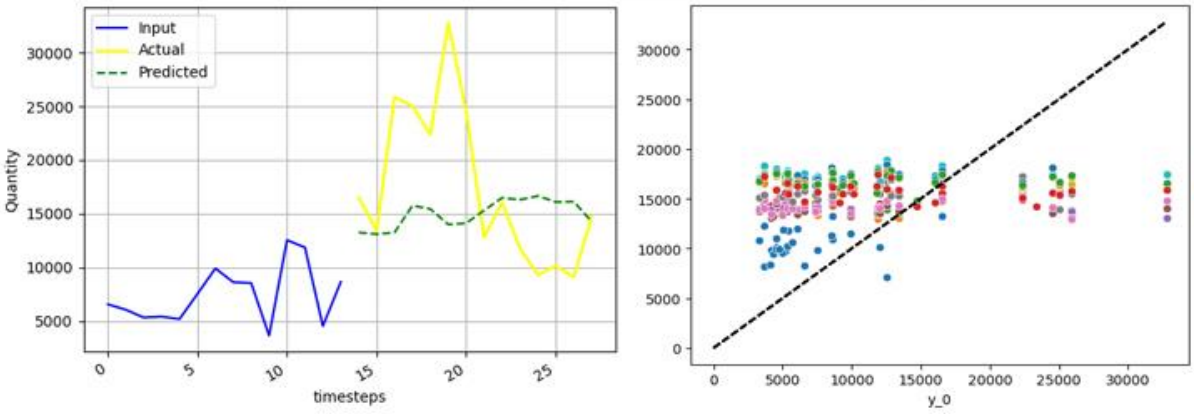
```
Mean Squared Error (Gala): 45555078.659126446
Mean Absolute Error (Gala): 4920.223886507194
R-squared (Test score) 0.19367178194210474
Train score 0.18418255801920633
```



1.2 Organic

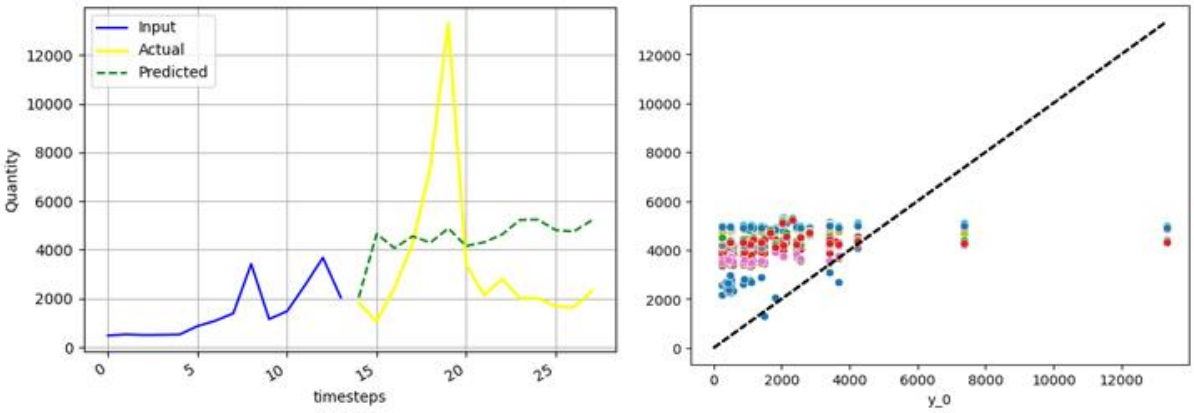
1.2.1 Envi

```
Mean Squared Error (Envi): 72894929.72230649
Mean Absolute Error (Envi): 7682.87711152232
R-squared (Test score) -0.6210215501245857
Train score 0.07995933317984279
```



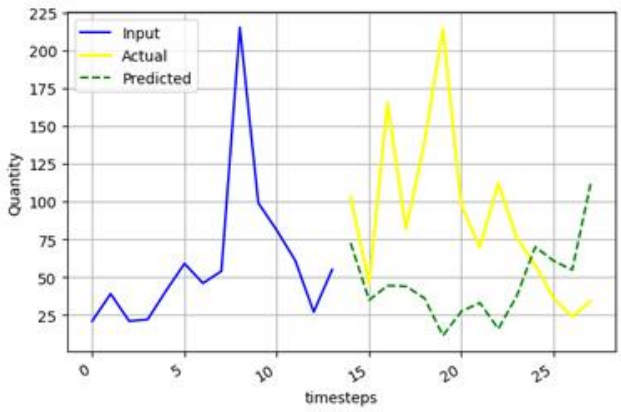
1.2.2 Fuji

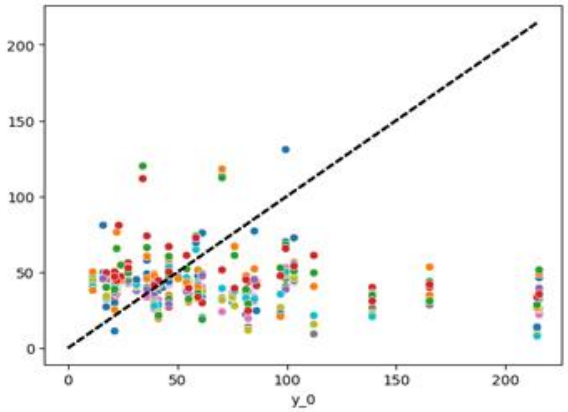
```
Mean Squared Error (Fuji): 10248460.100125061
Mean Absolute Error (Fuji): 2872.920742759555
R-squared (Test score) -2.280412015245466
Train score 0.10305842852066084
```



1.2.3 Gala

```
Mean Squared Error (Gala): 3864.9177149403044
Mean Absolute Error (Gala): 41.997674456168006
R-squared (Test score) -0.464013012354894
Train score 0.128943220731016
```



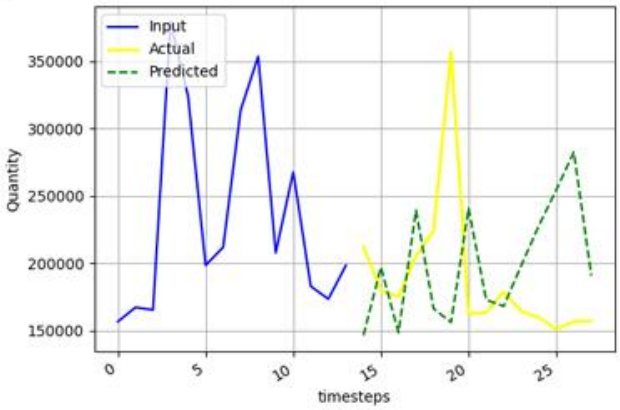


2. Support Vector Regression

2.1 Conventional

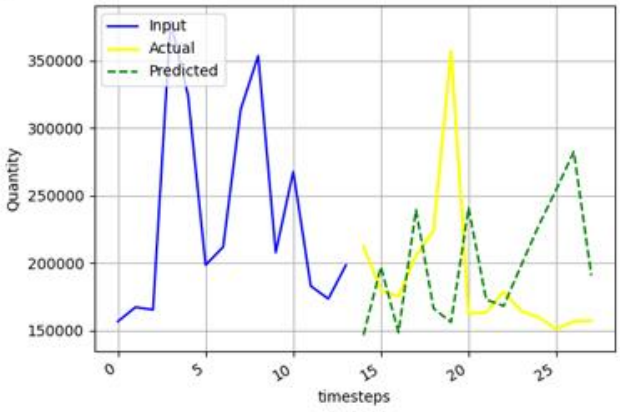
2.1.1 Envi

```
Mean Squared Error (Fuji): 10548115915.975368
Mean Absolute Error (Fuji): 78314.37438423645
R-squared (Test score) -1.380642297642322
Train score 1.0
```



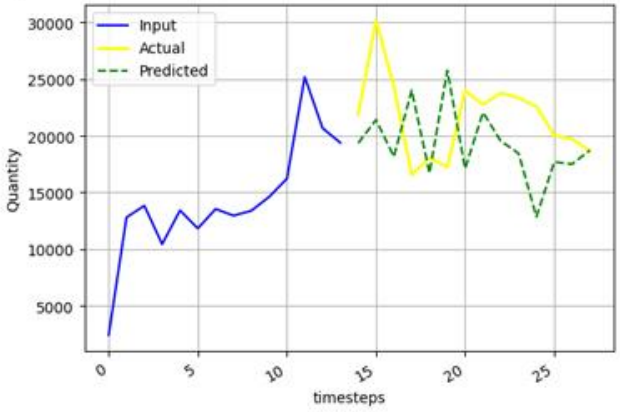
2.1.2 Fuji

```
Mean Squared Error (Fuji): 10548115915.975368
Mean Absolute Error (Fuji): 78314.37438423645
R-squared (Test score) -1.380642297642322
Train score 1.0
```



2.1.3 Gala

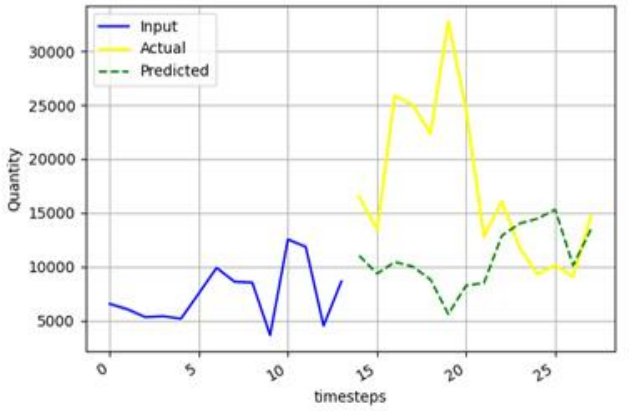
```
Mean Squared Error (Gala): 83182636.62315272
Mean Absolute Error (Gala): 7293.72660098522
R-squared (Test score) -0.4551962853908554
Train score 1.0
```



2.2 Organic

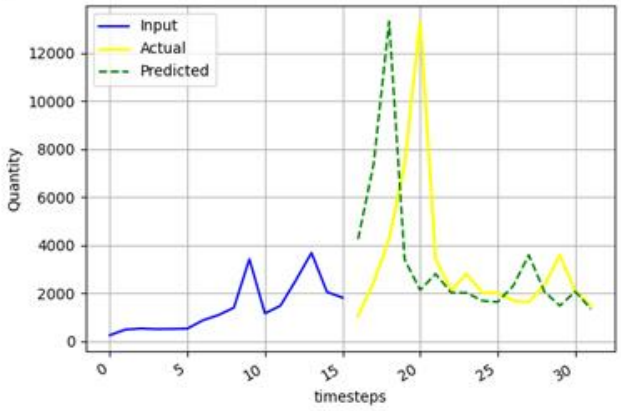
2.2.1 Envi

```
Mean Squared Error (Envi): 108864617.44088669
Mean Absolute Error (Envi): 7026.938423645321
R-squared (Test score) -1.4090082887592421
Train score 1.0
```



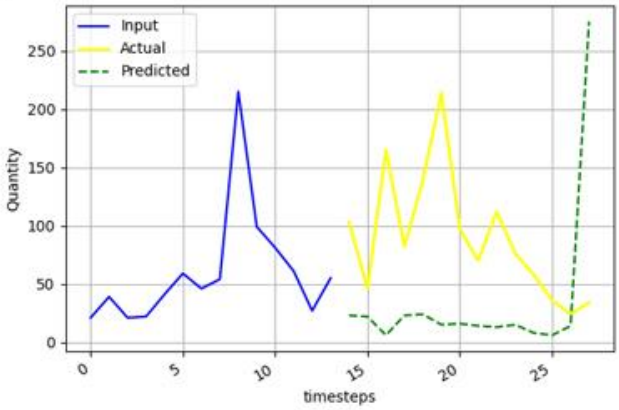
2.2.2 Fuji

```
Mean Squared Error (Fuji): 11871683.796875
Mean Absolute Error (Fuji): 2183.8058035714284
R-squared (Test score) -3.0579888260703747
Train score 1.0
```



2.2.3 Gala

```
Mean Squared Error (Gala): 6943.261083743842
Mean Absolute Error (Gala): 56.65517241379312
R-squared (Test score) -1.6984623598746158
Train score 0.9927338418030718
```

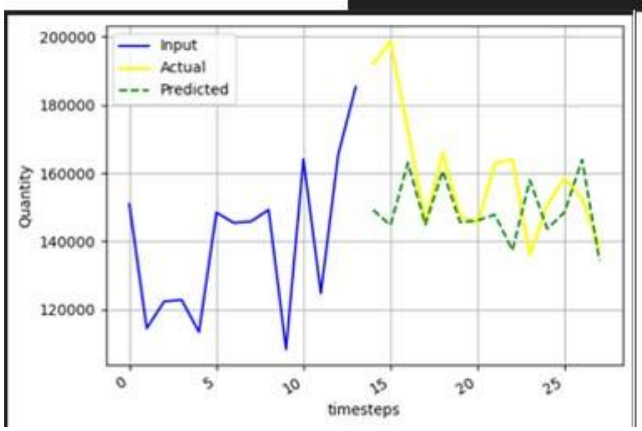


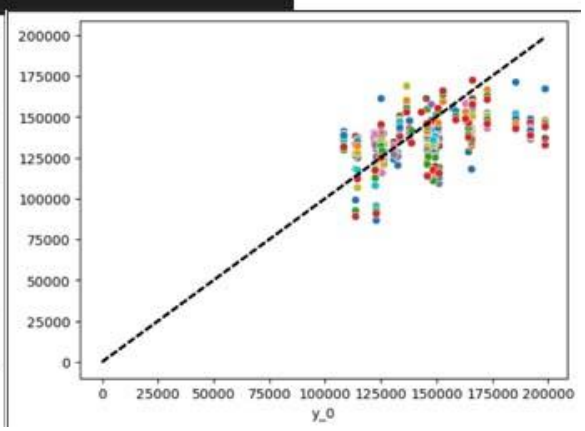
3. Elastic Regression

3.1 Conventional

3.1.1 Envi

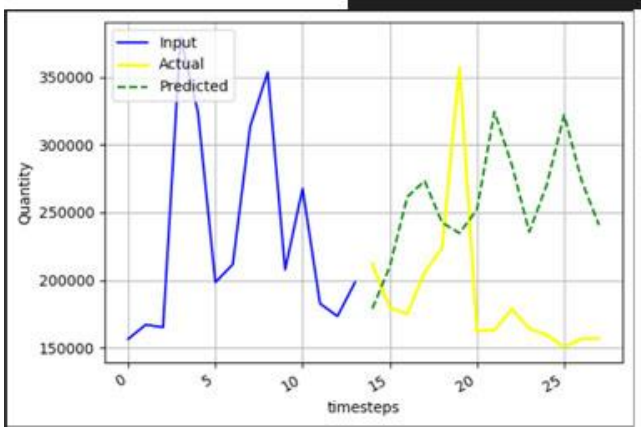
```
Mean Squared Error (Envi): 481500422.1107555
Mean Absolute Error (Envi): 16901.372803756996
R-squared (Test score) 0.11318713621014402
Train score 0.22729496931015428
```

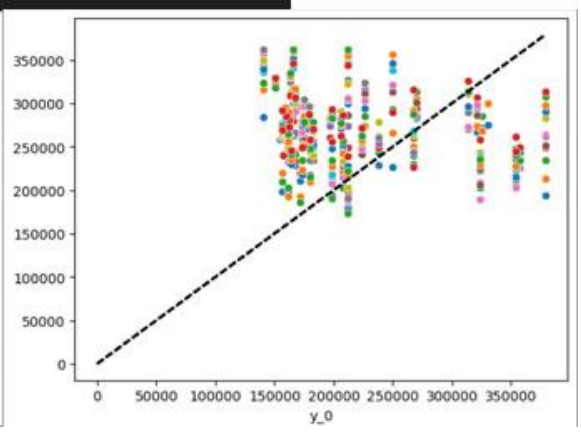




3.1.2 Fuji

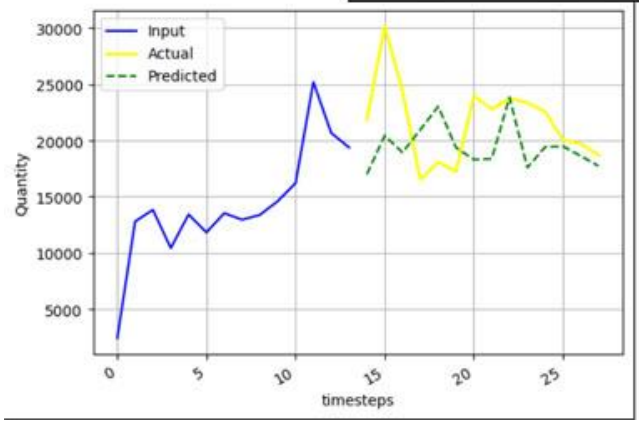
```
Mean Squared Error (Fuji): 8903716060.2655
Mean Absolute Error (Fuji): 80911.82887822717
R-squared (Test score) -0.9986255066080018
Train score 0.5610776611481828
```

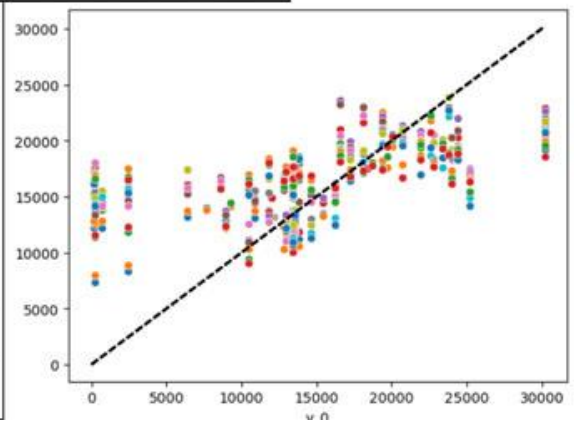




3.1.3 Gala

```
Mean Squared Error (Gala): 45555078.786626406
Mean Absolute Error (Gala): 4920.2238923659315
R-squared (Test score) 0.19367177832095375
Train score 0.1841825580192044
```

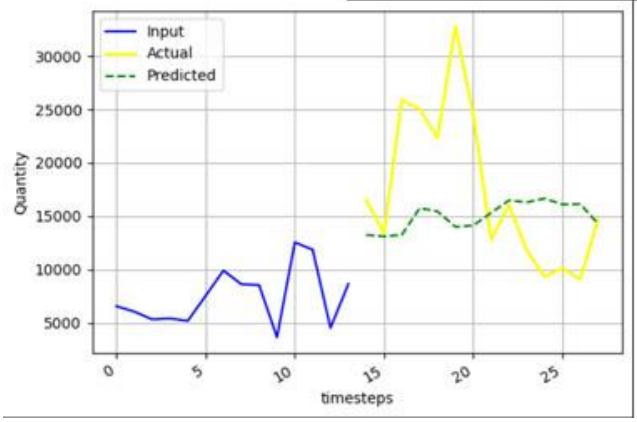


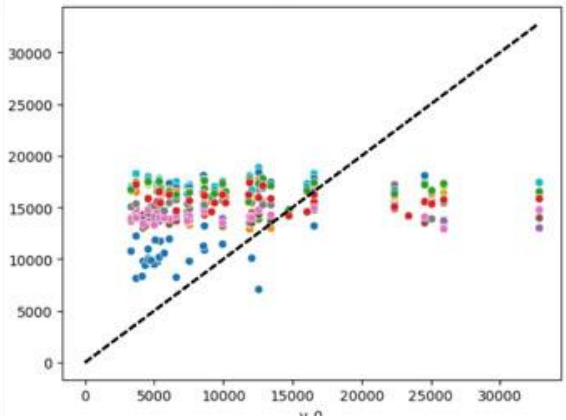


3.2 Organic

3.2.1 Envi

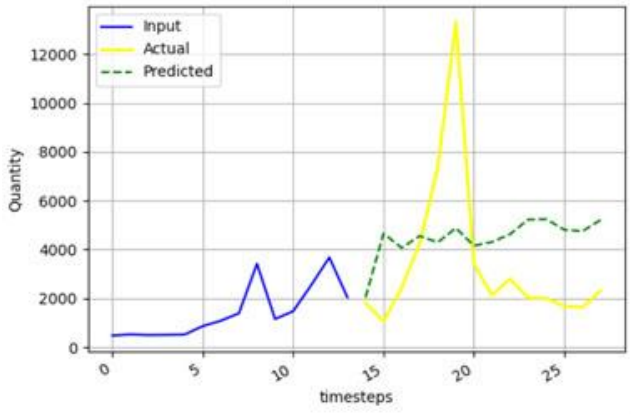
```
Mean Squared Error (Envi): 72894929.00652708
Mean Absolute Error (Envi): 7682.877067609385
R-squared (Test score) -0.6210215339495352
Train score 0.0799593331798425
```

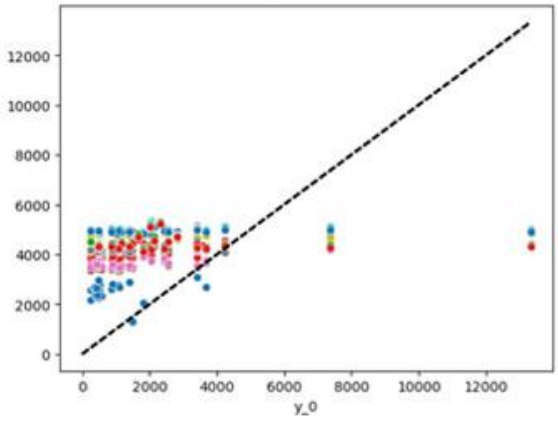




3.2.2 Fuji

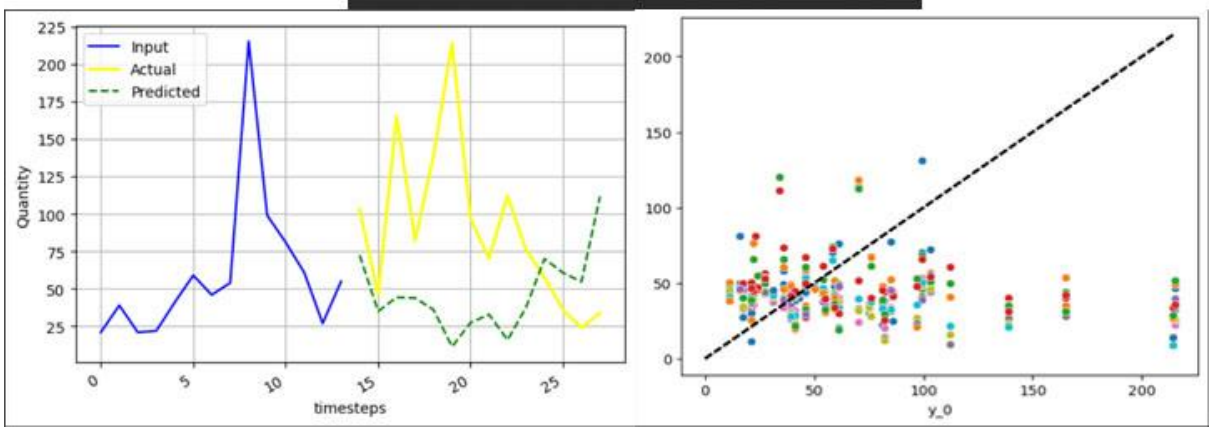
```
Mean Squared Error (Fuji): 10248460.442681158
Mean Absolute Error (Fuji): 2872.920808923291
R-squared (Test score) -2.280412092133922
Train score 0.10305842852063034
```





3.2.3 Gala

```
Mean Squared Error (Gala): 3863.542629152305
Mean Absolute Error (Gala): 41.98789878348348
R-squared (Test score) -0.46349075993958794
Train score 0.12894229960794798
```

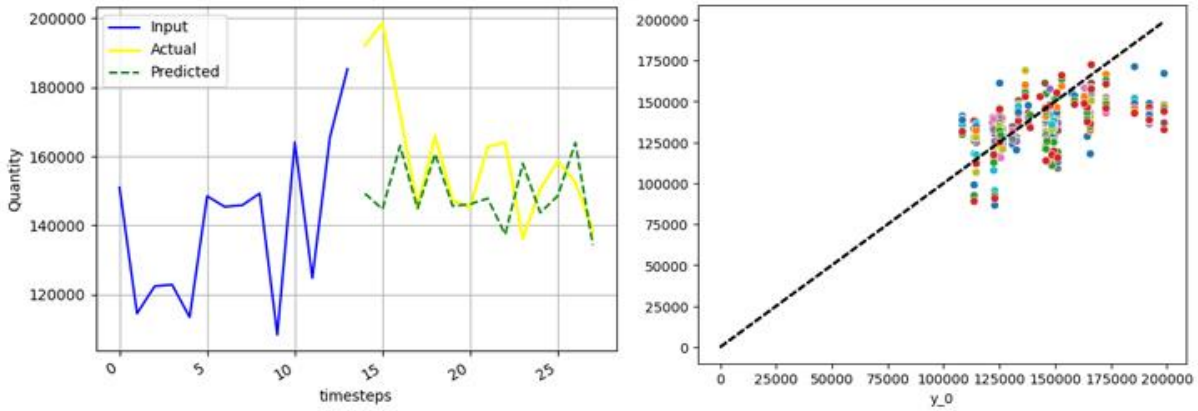


4. Lasso Regression

4.1 Conventional

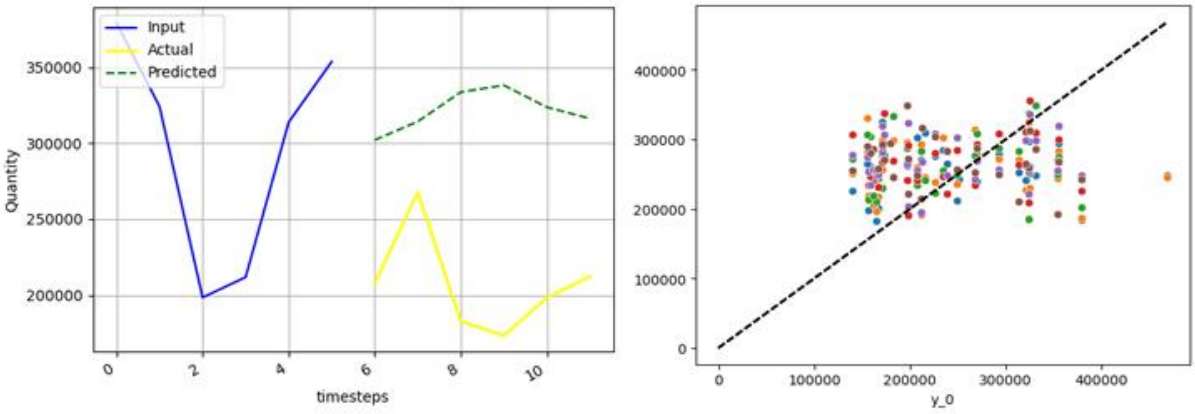
4.1.1 Envi

```
Mean Squared Error (Envi): 481500422.0310373
Mean Absolute Error (Envi): 16901.372801466652
R-squared (Test score) 0.11318713638556978
Train score 0.22729496931015417
```



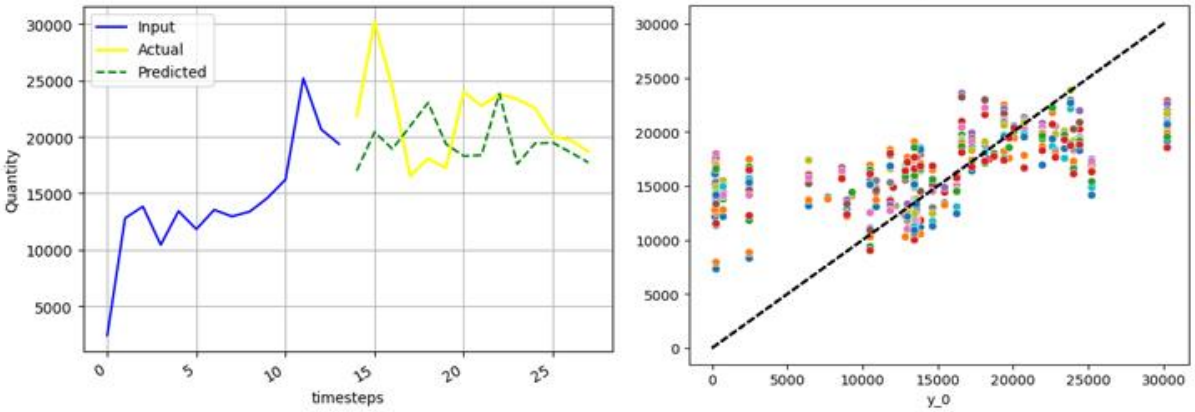
4.1.2 Fuji

```
Mean Squared Error (Fuji): 7482326653.964009
Mean Absolute Error (Fuji): 71941.79105438752
R-squared (Test score) -0.3606761435309355
Train score 0.5262183747210286
```



4.1.3 Gala

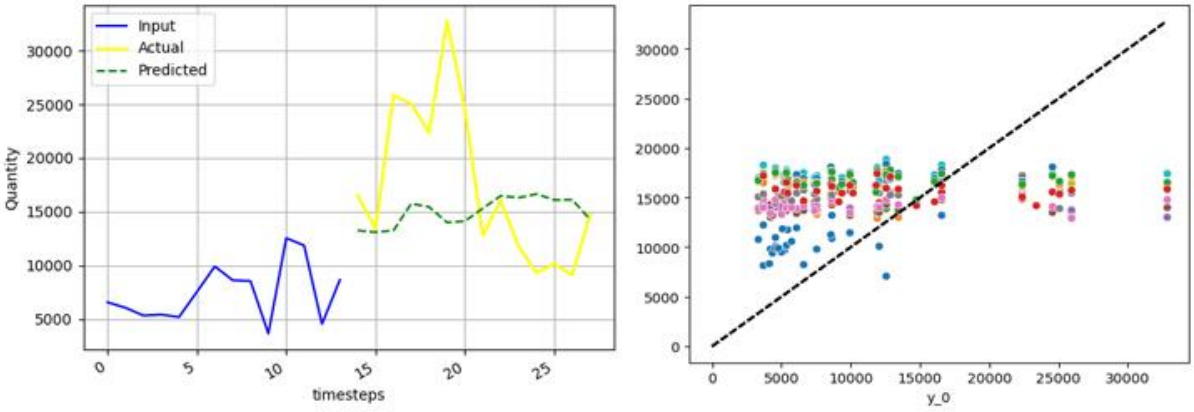
```
Mean Squared Error (Gala): 45555078.73580698
Mean Absolute Error (Gala): 4920.223894671896
R-squared (Test score) 0.19367177784987435
Train score 0.1841825580191999
```



4.2 Organic

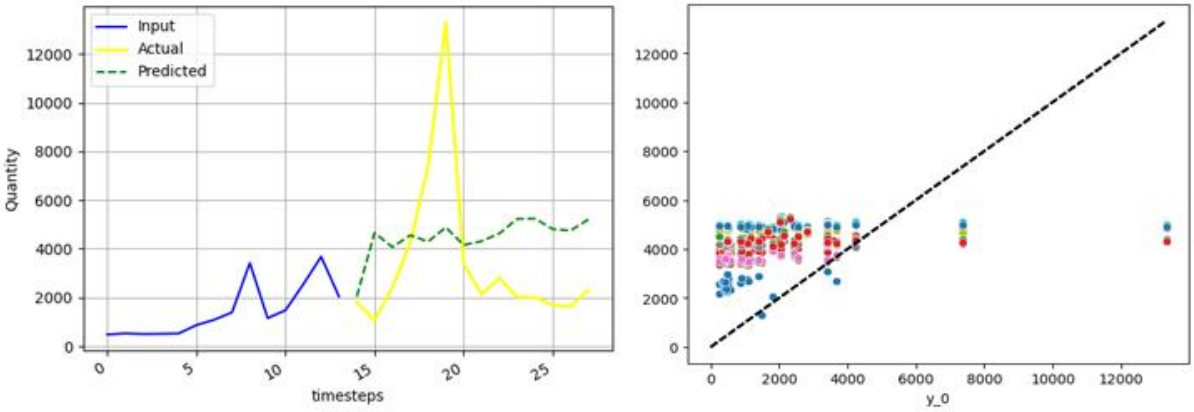
4.2.1 Envi

```
Mean Squared Error (Envi): 72894928.39647935
Mean Absolute Error (Envi): 7682.877029680713
R-squared (Test score) -0.6210215198545521
Train score 0.0799593331798411
```



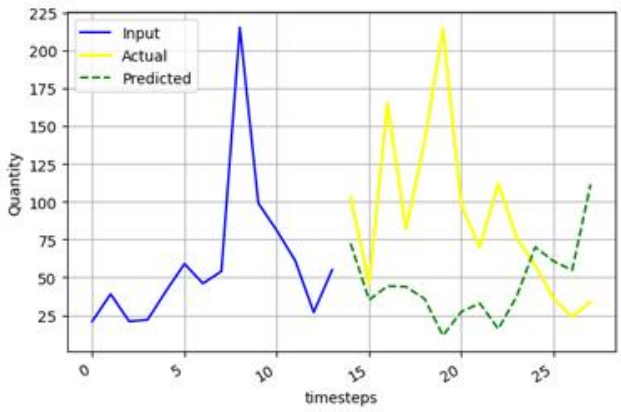
4.2.2 Fuji

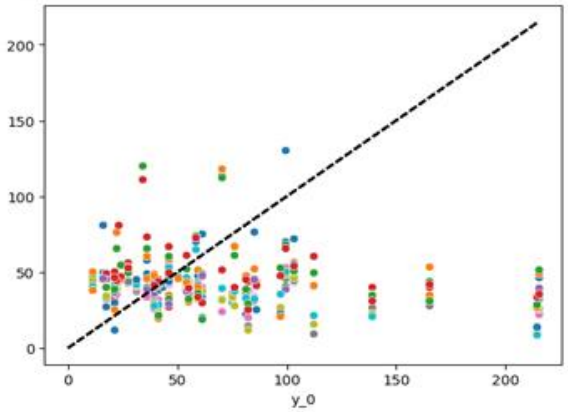
```
Mean Squared Error (Fuji): 10248460.729949728
Mean Absolute Error (Fuji): 2872.920861945301
R-squared (Test score) -2.280412173971184
Train score 0.10305842852056843
```



4.2.3 Gala

```
Mean Squared Error (Gala): 3862.564748118569
Mean Absolute Error (Gala): 41.98084464859046
R-squared (Test score) -0.46312025125317813
Train score 0.12894012081252332
```



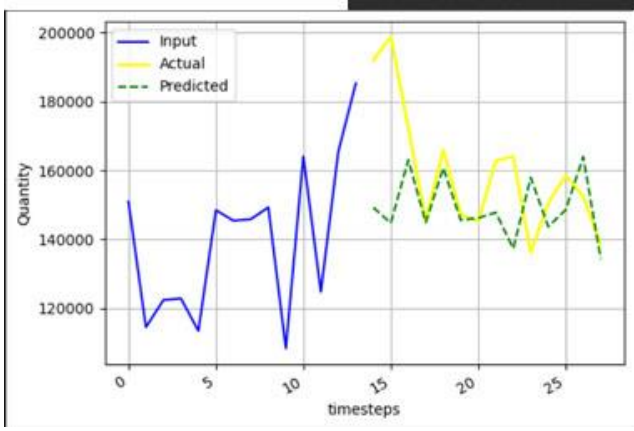


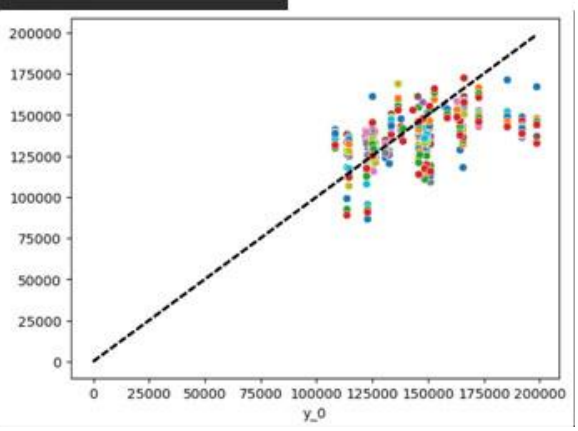
5. Ridge Regression

5.1 Conventional

5.1.1 Envi

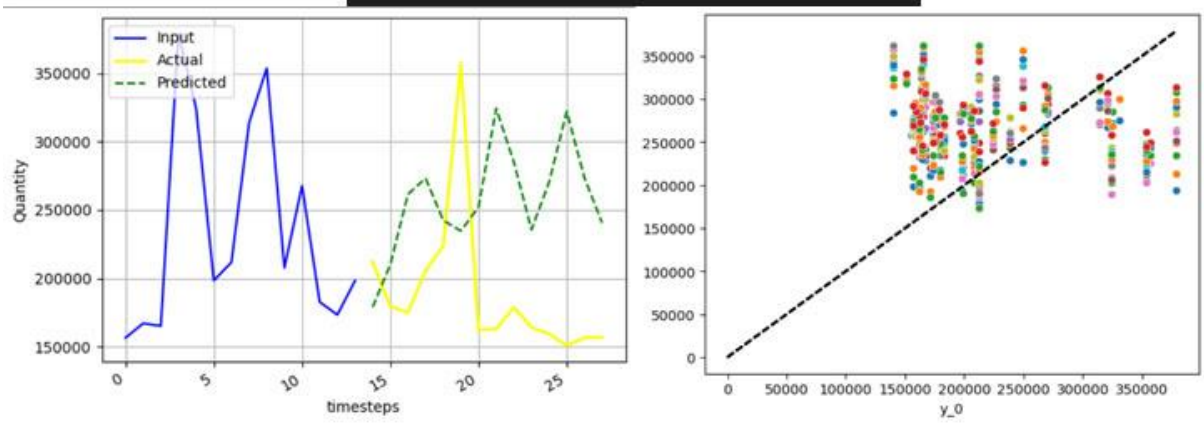
```
Mean Squared Error (Envi): 481500422.35214347
Mean Absolute Error (Envi): 16901.372808840802
R-squared (Test score) 0.11318713573039689
Train score 0.22729496931015422
```





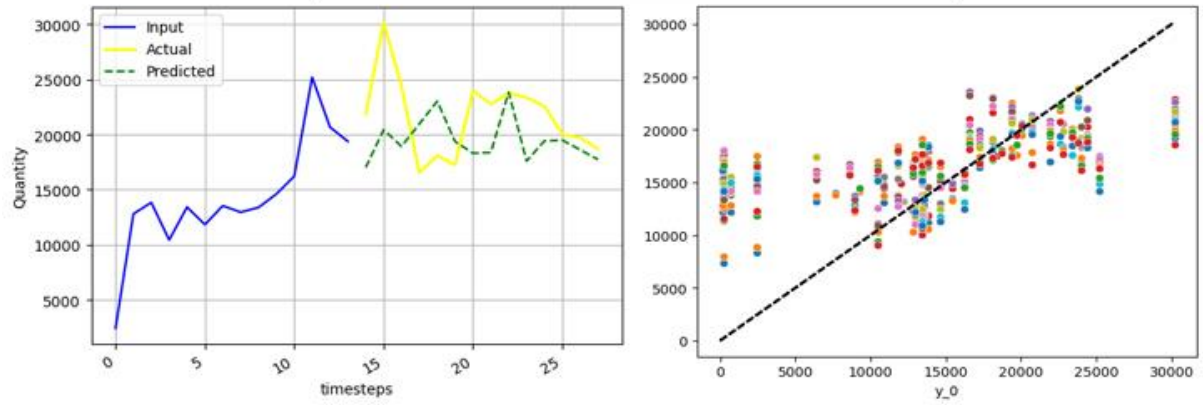
5.1.2 Fuji

```
Mean Squared Error (Fuji): 8903716062.45996
Mean Absolute Error (Fuji): 80911.82888301752
R-squared (Test score) -0.9986255071017304
Train score 0.5610776611481828
```



5.1.3 Gala

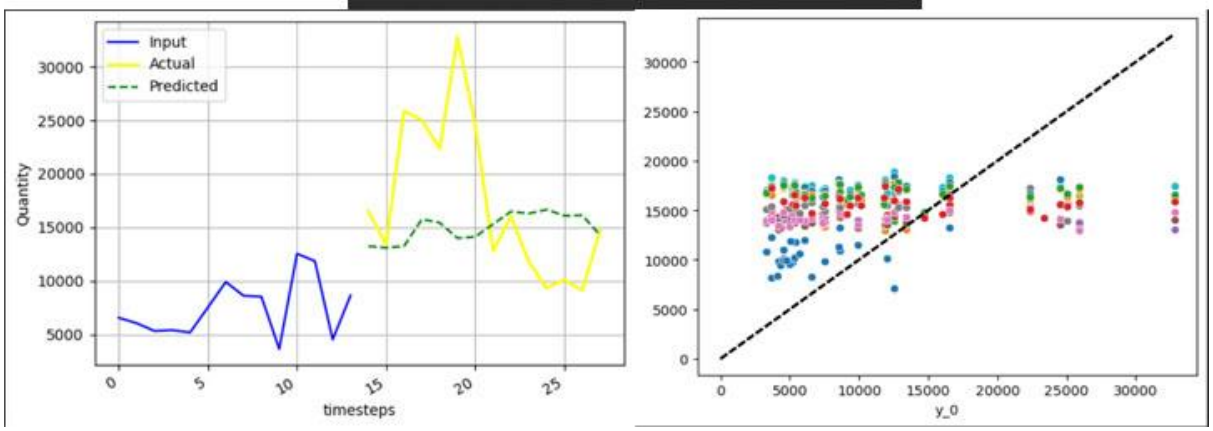
```
Mean Squared Error (Gala): 45555078.66070442
Mean Absolute Error (Gala): 4920.223886538814
R-squared (Test score) 0.19367178191423168
Train score 0.1841825580192062
```



5.2 Organic

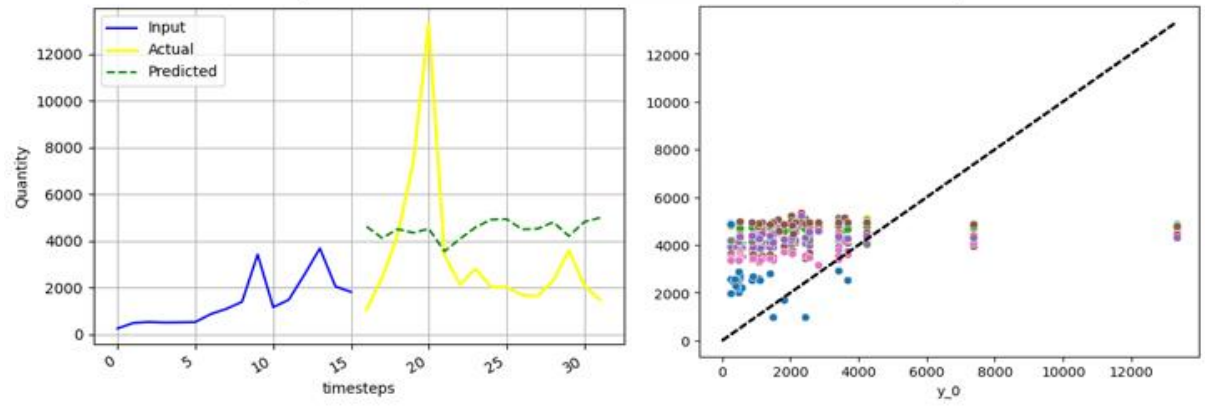
5.2.1 Envi

```
Mean Squared Error (Envi): 72894929.72137211
Mean Absolute Error (Envi): 7682.87711146946
R-squared (Test score) -0.6210215501062836
Train score 0.07995933317984279
```



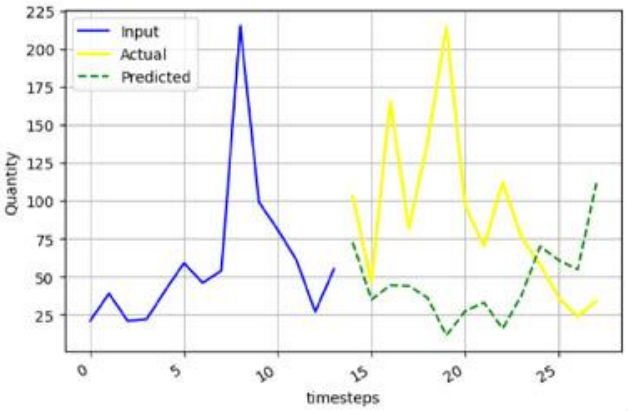
5.2.2 Fuji

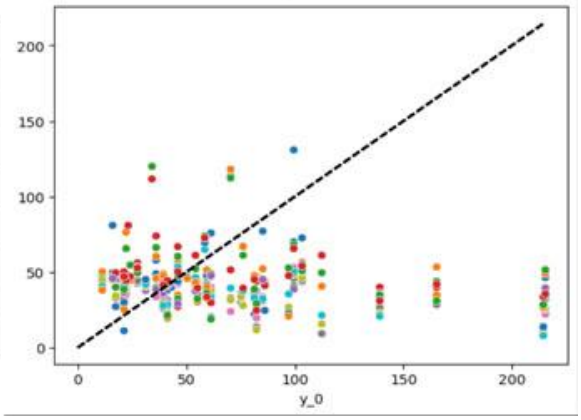
```
Mean Squared Error (Fuji): 10261188.692228703
Mean Absolute Error (Fuji): 2845.4583738015176
R-squared (Test score) -1.3873569937974113
Train score 0.082986537952706
```



5.2.3 Gala

```
Mean Squared Error (Gala): 3864.914161117434
Mean Absolute Error (Gala): 41.99765022294757
R-squared (Test score) -0.46401165469340516
Train score 0.12894322072788836
```



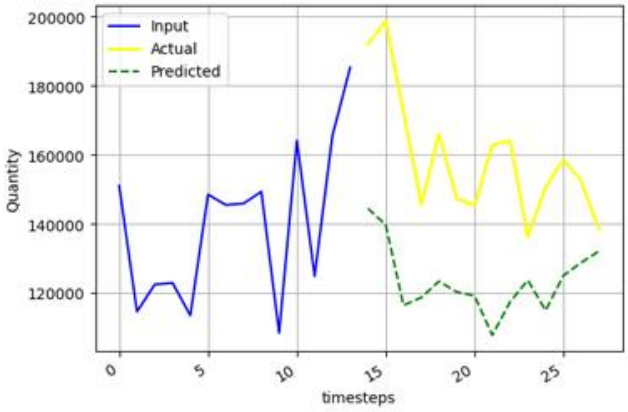


6. Regression Tree

6.1 Conventional

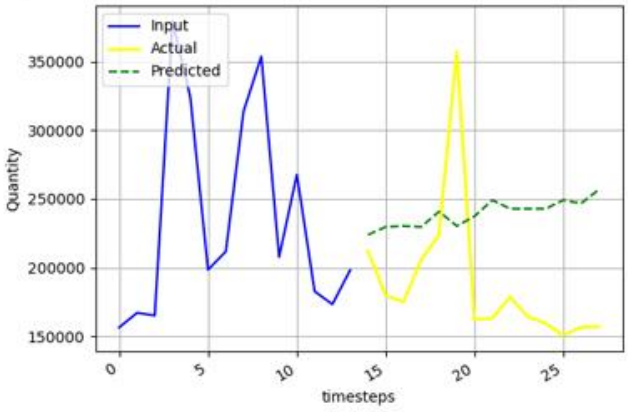
6.1.1 Envi

```
Mean Squared Error (Envi): 857651988.6482011
Mean Absolute Error (Envi): 23705.661632066625
R-squared (Test score) -0.5638817919045862
Train score 0.3947909770571895
```



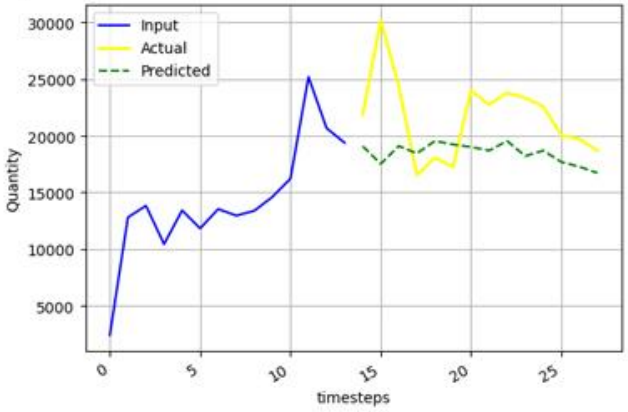
6.1.2 Fuji

```
Mean Squared Error (Fuji): 9379227028.259237
Mean Absolute Error (Fuji): 81034.1514778325
R-squared (Test score) -1.100494213348721
Train score 0.30075063240874744
```



6.1.3 Gala

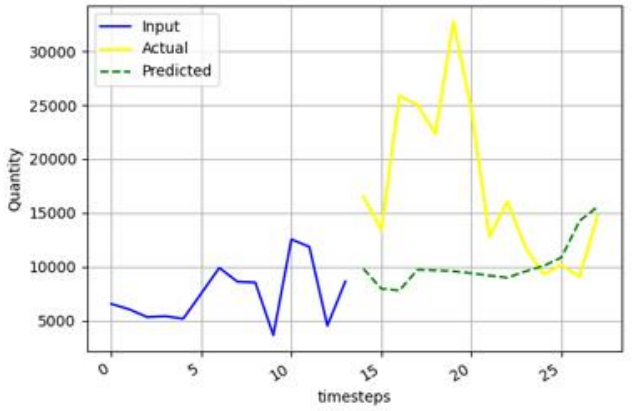
```
Mean Squared Error (Gala): 74876777.34729065
Mean Absolute Error (Gala): 6921.780788177341
R-squared (Test score) -0.3184353636123149
Train score 0.02128332319234796
```



6.2 Organic

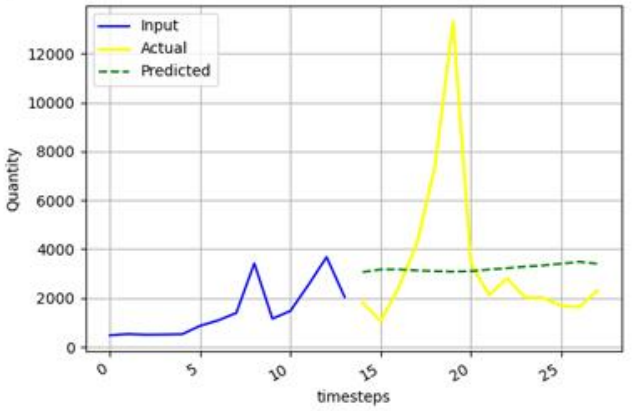
6.2.1 Envi

```
Mean Squared Error (Envi): 53535311.222976156
Mean Absolute Error (Envi): 5581.119569206993
R-squared (Test score) -0.19552593667662405
Train score 0.1277111023020084
```

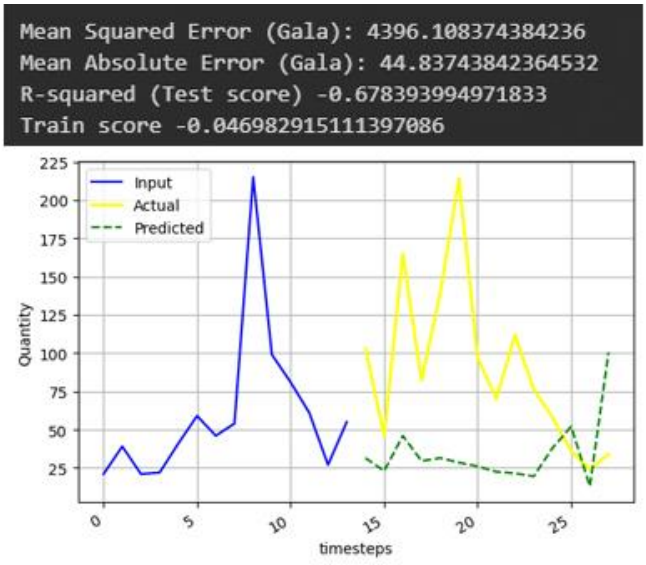


6.2.2 Fuji

```
Mean Squared Error (Fuji): 7039347.00862069
Mean Absolute Error (Fuji): 2144.4137931034484
R-squared (Test score) -1.1876062870428201
Train score -0.057026043536751794
```



6.2.3 Gala



Summary

- data preprocess
- แบ่งแอปเปิ้ลจากประเทศบราซิล
- แบ่งแอปเปิ้ลตาม type
- แบ่งโมเดลแยกตามสายพันธุ์
- shift ค่าในอดีต 14 สัปดาห์ เพื่อทำนาย 14 สัปดาห์ถัดไป

ผลสรุปได้ดังนี้

Conventional

Envi: 1st Linear Regression, Elastic Regression, Lasso Regression, Ridge Regression

2nd Regression Tree

3rd Support Vector Regression

Fuji: 1st Lasso Regression, Linear Regression

2nd Elastic Regression, Ridge Regression

3rd Regression Tree

4th Support Vector Regression

Gala: 1st Elastic Regression, Lasso Regression, Linear Regression

2nd Ridge Regression, Regression Tree

3rd Support Vector Regression

Organic

Envi: 1st Regression Tree

2nd Elastic Regression, Lasso Regression, Linear Regression, Ridge Regression

3rd Support Vector Regression

Fuji: 1st Regression Tree

2nd Ridge Regression

3rd Elastic Regression, Lasso Regression, Linear Regression

4th Support Vector Regression

Gala: 1st Elastic Regression, Lasso Regression, Linear Regression

2nd Regression

3rd Regression Tree

4th Support Vector Regression