Laverie Beni Amir

OCP khouribgra

VERSION DU 01/01/2019

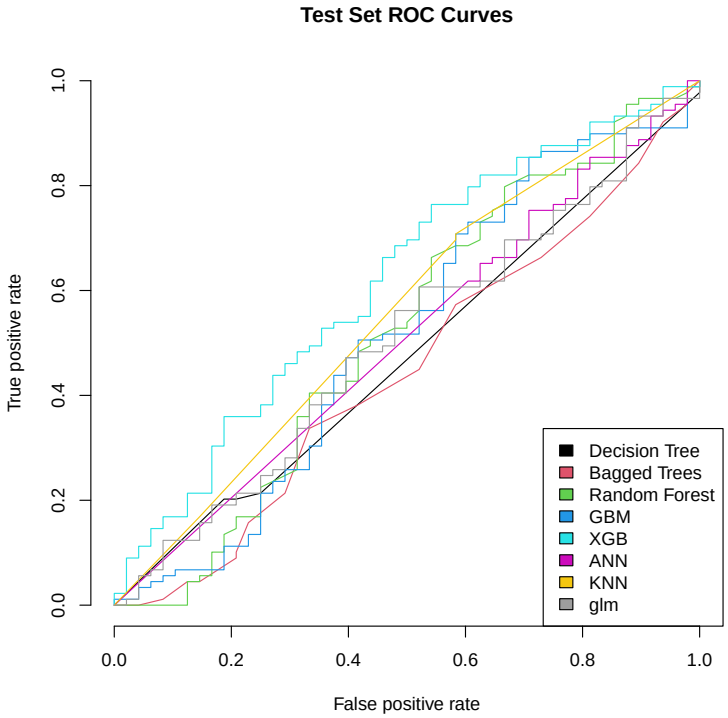
Chapitre 1

Les Fines Classification

1.1 Fines Jointure SDP Mean entre deux SDP

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001522dcc35b8>
```

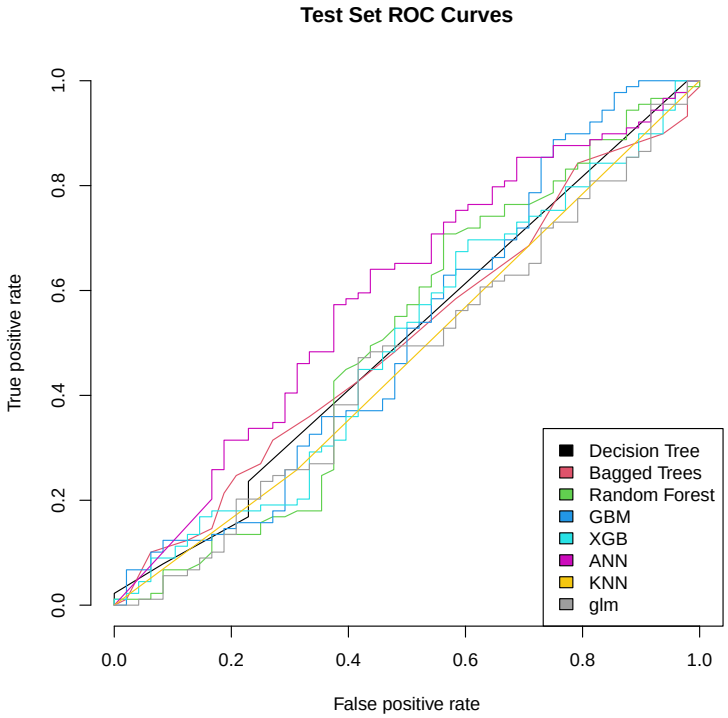
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.48	0.75	0.42	0.77
2	Bagged Trees	0.45	0.99	0.45	0.99
3	Random Forest	0.52	0.99	0.56	0.99
4	GBM	0.52	0.99	0.61	0.96
5	XGB	0.62	1.00	0.66	1.00
6	ANN	0.51	0.94	0.62	0.96
7	Knn	0.49	0.76	0.52	0.78
8	glm	0.51	0.71	0.41	0.66
9	Moyenne totale	0.51	0.89	0.53	0.89



1.2 Fines Jointure SDP Max entre deux SDP

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x00000152384910c8>
```

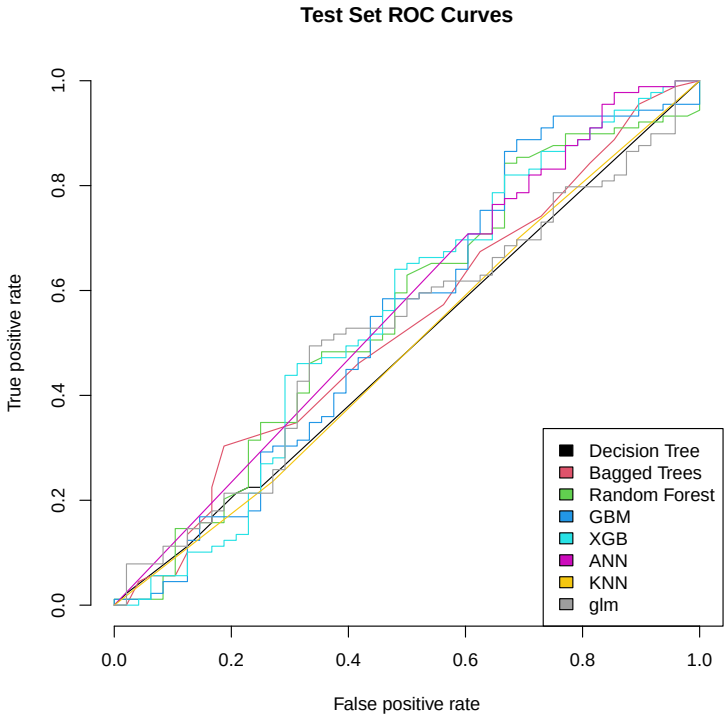
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.51	0.84	0.40	0.80
2	Bagged Trees	0.51	0.99	0.47	0.99
3	Random Forest	0.51	0.99	0.61	0.99
4	GBM	0.51	0.99	0.64	0.95
5	XGB	0.50	1.00	0.58	0.99
6	ANN	0.59	0.95	0.60	0.97
7	Knn	0.54	0.71	0.60	0.73
8	glm	0.47	0.70	0.40	0.67
9	Moyenne totale	0.52	0.90	0.54	0.89



1.3 Fines Jointure SDP Median entre deux SDP

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x00000152360b4270>
```

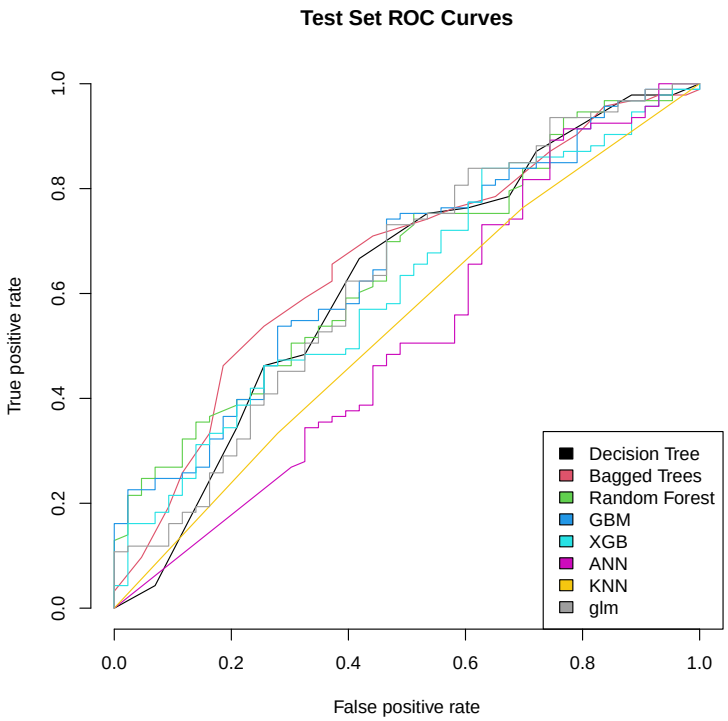
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.49	0.82	0.40	0.79
2	Bagged Trees	0.53	0.99	0.48	0.99
3	Random Forest	0.56	1.00	0.55	0.99
4	GBM	0.54	1.00	0.63	0.96
5	XGB	0.56	1.00	0.58	0.99
6	ANN	0.56	0.95	0.64	0.96
7	Knn	0.57	0.72	0.61	0.73
8	glm	0.52	0.70	0.42	0.69
9	Moyenne totale	0.54	0.90	0.54	0.89



1.4 Fines Jointure SDP Mean 60 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x0000015235709760>
```

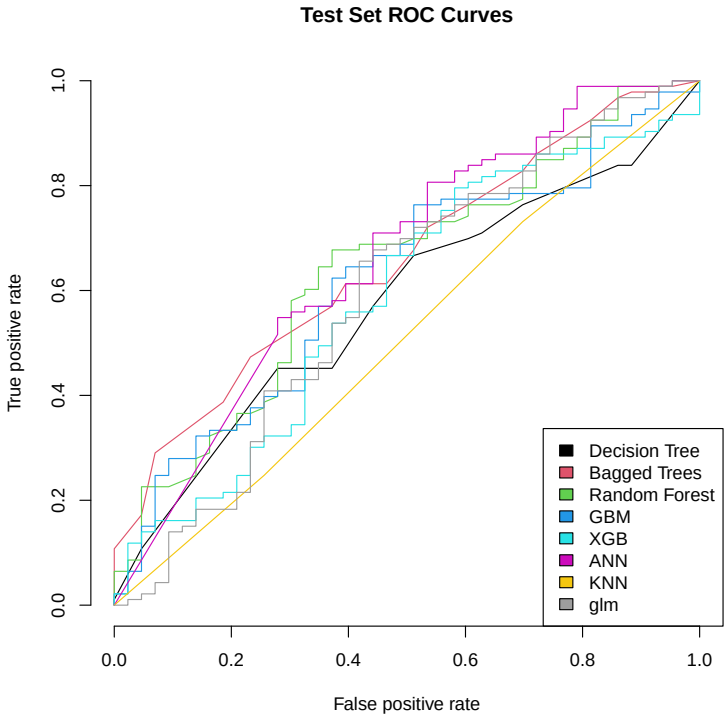
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.63	0.81	0.64	0.79
2	Bagged Trees	0.66	1.00	0.65	0.99
3	Random Forest	0.65	1.00	0.66	0.99
4	GBM	0.65	1.00	0.67	0.97
5	XGB	0.62	1.00	0.57	1.00
6	ANN	0.52	0.94	0.49	0.95
7	Knn	0.52	0.75	0.57	0.77
8	glm	0.63	0.68	0.67	0.65
9	Moyenne totale	0.61	0.90	0.62	0.89



1.5 Fines Jointure SDP Max 60 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x0000015236bc9958>
```

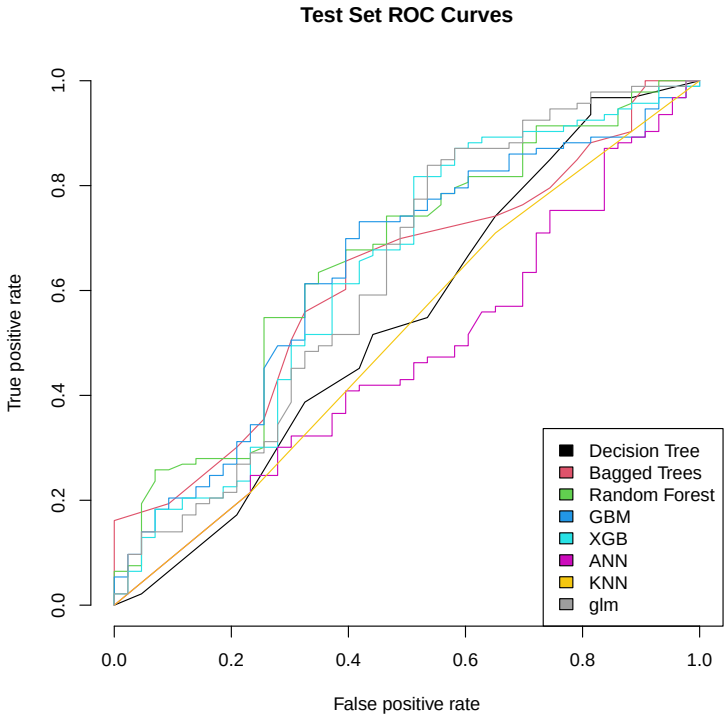
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.58	0.82	0.60	0.78
2	Bagged Trees	0.66	1.00	0.64	0.99
3	Random Forest	0.64	1.00	0.63	0.99
4	GBM	0.62	1.00	0.67	0.98
5	XGB	0.59	1.00	0.60	1.00
6	ANN	0.66	0.93	0.68	0.95
7	Knn	0.53	0.74	0.58	0.75
8	glm	0.60	0.68	0.65	0.65
9	Moyenne totale	0.61	0.90	0.63	0.89



1.6 Fines Jointure SDP Median 60 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x0000015237106968>
```

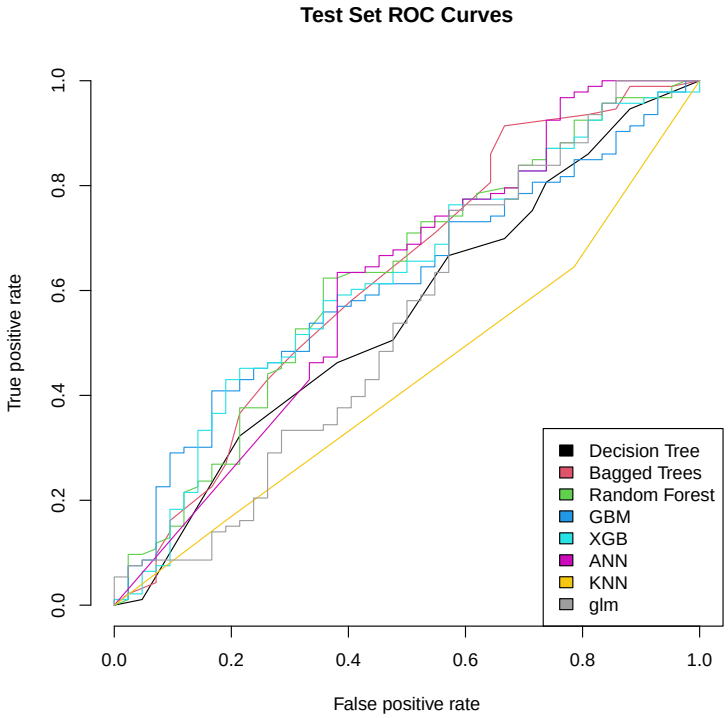
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.54	0.79	0.58	0.78
2	Bagged Trees	0.62	1.00	0.64	0.99
3	Random Forest	0.66	1.00	0.65	0.99
4	GBM	0.64	1.00	0.67	0.95
5	XGB	0.63	1.00	0.61	1.00
6	ANN	0.47	0.96	0.46	0.97
7	Knn	0.56	0.76	0.59	0.77
8	glm	0.63	0.65	0.71	0.65
9	Moyenne totale	0.59	0.89	0.61	0.89



1.7 Fines Jointure SDP Mean 10 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001523c9c2a68>
```

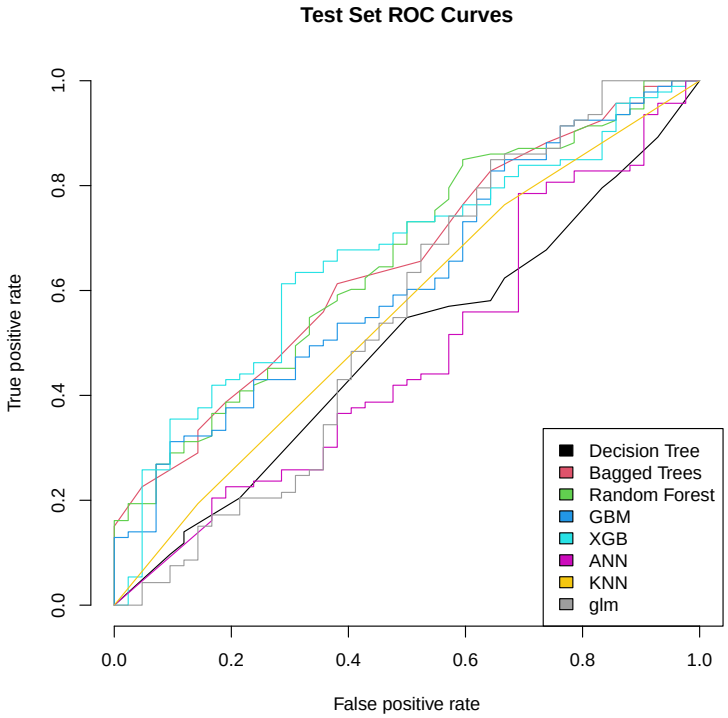
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.55	0.79	0.61	0.77
2	Bagged Trees	0.63	0.99	0.61	0.99
3	Random Forest	0.62	0.99	0.64	0.99
4	GBM	0.61	1.00	0.61	0.97
5	XGB	0.62	1.00	0.59	1.00
6	ANN	0.61	0.93	0.63	0.96
7	Knn	0.55	0.73	0.60	0.75
8	glm	0.54	0.69	0.67	0.66
9	Moyenne totale	0.59	0.89	0.62	0.89



1.8 Fines Jointure SDP Max 10 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001523a039010>
```

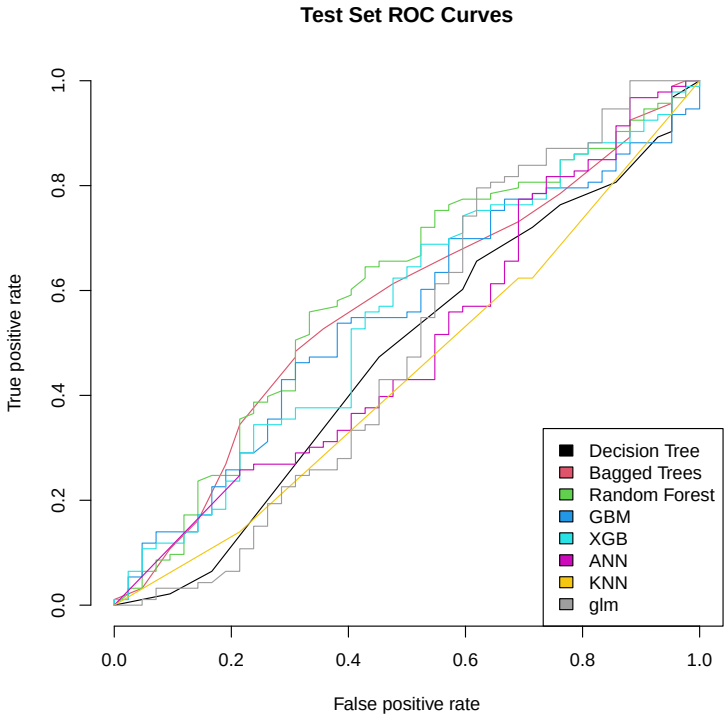
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.49	0.79	0.51	0.76
2	Bagged Trees	0.65	0.99	0.65	0.99
3	Random Forest	0.66	0.99	0.67	0.99
4	GBM	0.62	1.00	0.62	0.97
5	XGB	0.66	1.00	0.65	1.00
6	ANN	0.48	0.95	0.39	0.97
7	Knn	0.60	0.73	0.65	0.75
8	glm	0.55	0.70	0.70	0.66
9	Moyenne totale	0.59	0.89	0.61	0.89



1.9 Fines Jointure SDP Median 10 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001523645a3d8>
```

	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.48	0.80	0.59	0.78
2	Bagged Trees	0.57	0.99	0.59	0.99
3	Random Forest	0.60	0.99	0.66	0.99
4	GBM	0.55	0.99	0.59	0.97
5	XGB	0.56	1.00	0.57	1.00
6	ANN	0.50	0.90	0.41	0.94
7	Knn	0.53	0.70	0.57	0.73
8	glm	0.50	0.71	0.67	0.68
9	Moyenne totale	0.54	0.89	0.58	0.88



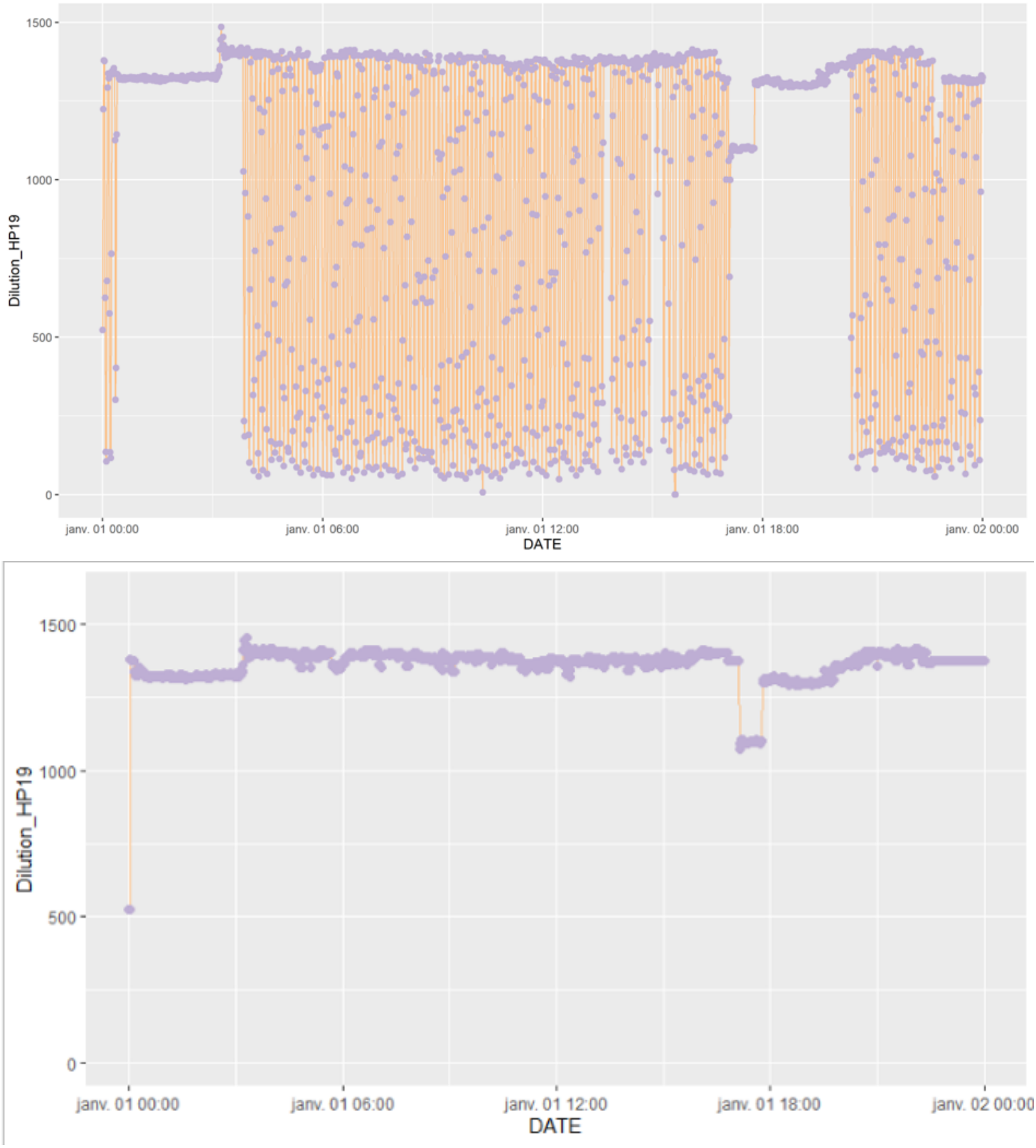
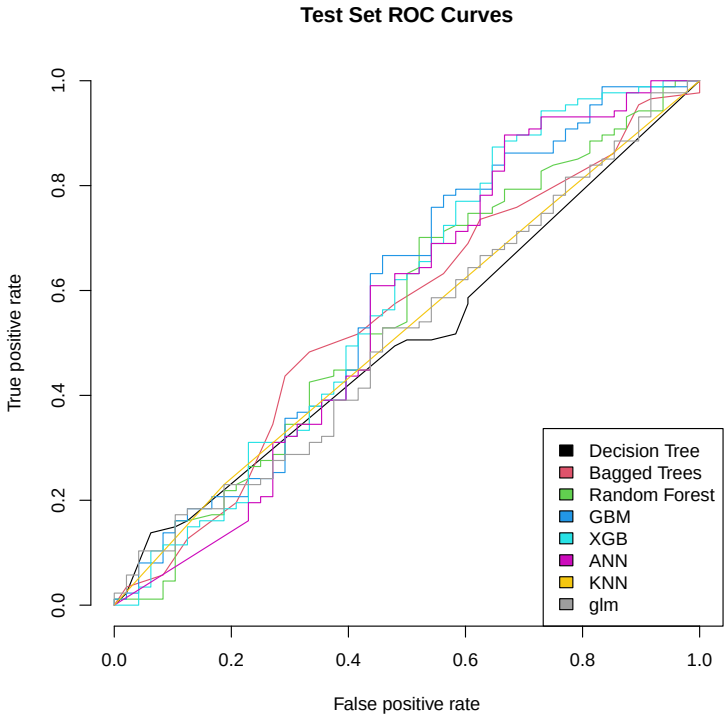


FIGURE 1.1 – Correction de la dilution du hopper 19

1.10 Fines Jointure SDP Mean entre deux SDP

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015233226130>
```

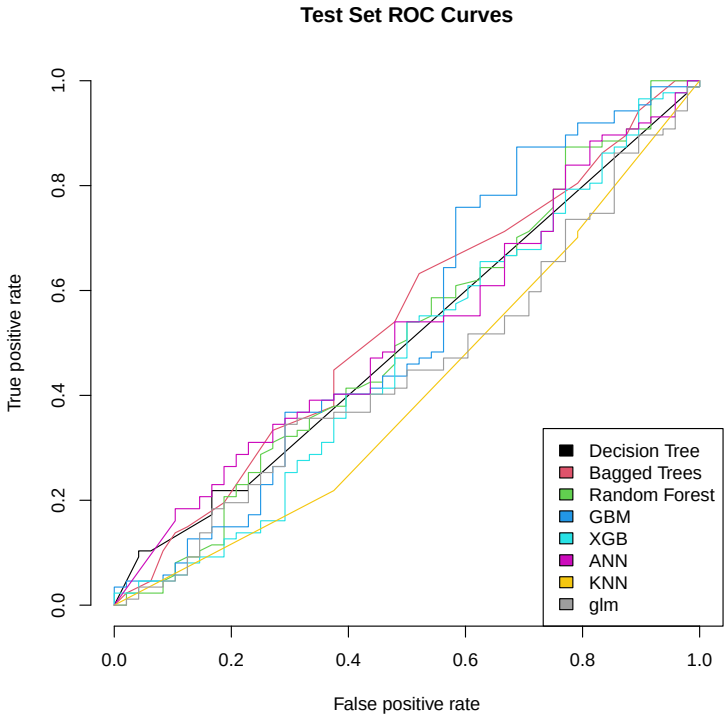
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.51	0.84	0.50	0.81
2	Bagged Trees	0.55	1.00	0.55	1.00
3	Random Forest	0.55	1.00	0.51	1.00
4	GBM	0.59	1.00	0.66	0.97
5	XGB	0.58	1.00	0.60	1.00
6	ANN	0.56	0.96	0.61	0.97
7	Knn	0.48	0.73	0.53	0.75
8	glm	0.52	0.72	0.41	0.69
9	Moyenne totale	0.54	0.91	0.55	0.90



1.11 Fines Jointure SDP Max entre deux SDP

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015236af2918>
```

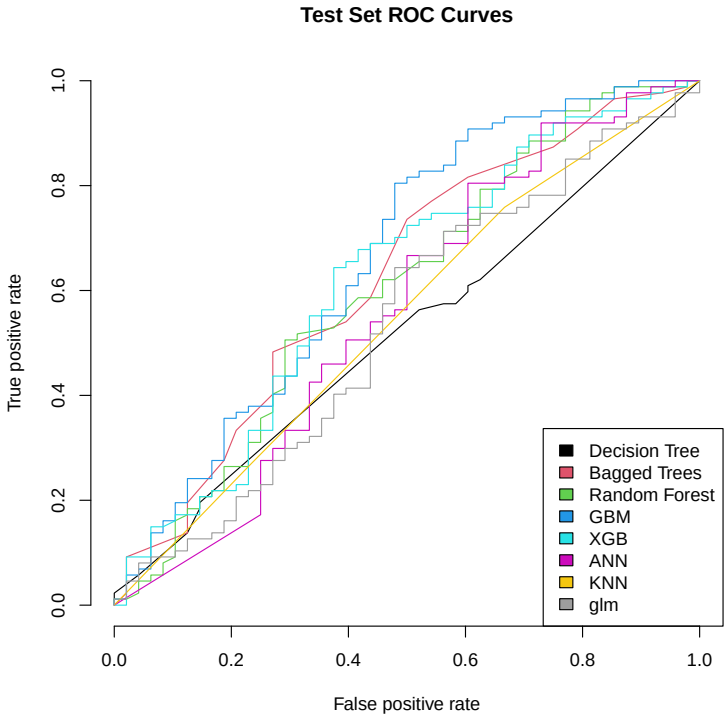
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.51	0.83	0.41	0.80
2	Bagged Trees	0.54	1.00	0.51	0.99
3	Random Forest	0.51	1.00	0.54	1.00
4	GBM	0.53	1.00	0.67	0.97
5	XGB	0.48	1.00	0.55	1.00
6	ANN	0.52	0.95	0.51	0.97
7	Knn	0.46	0.75	0.53	0.77
8	glm	0.45	0.72	0.40	0.71
9	Moyenne totale	0.50	0.91	0.52	0.90



1.12 Fines Jointure SDP Median entre deux SDP

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x00000152390c0af8>
```

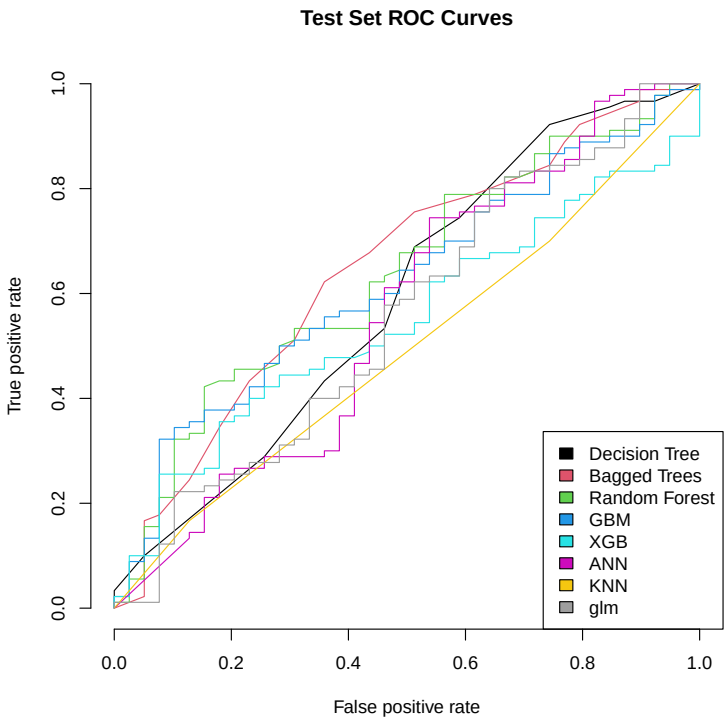
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.52	0.85	0.53	0.81
2	Bagged Trees	0.63	1.00	0.56	1.00
3	Random Forest	0.60	1.00	0.58	1.00
4	GBM	0.66	1.00	0.70	0.97
5	XGB	0.62	1.00	0.64	1.00
6	ANN	0.56	0.96	0.57	0.97
7	Knn	0.51	0.70	0.58	0.73
8	glm	0.54	0.72	0.40	0.70
9	Moyenne totale	0.58	0.90	0.57	0.90



1.13 Fines Jointure SDP Mean 60 minutes

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x000001522bd78a38>
```

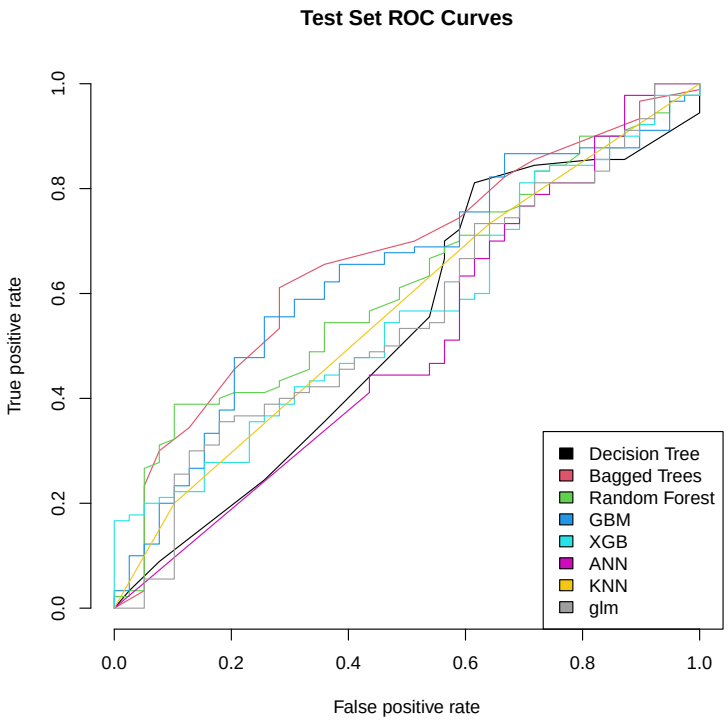
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.59	0.80	0.63	0.79
2	Bagged Trees	0.65	1.00	0.67	1.00
3	Random Forest	0.64	1.00	0.67	1.00
4	GBM	0.62	1.00	0.60	0.99
5	XGB	0.55	1.00	0.57	1.00
6	ANN	0.56	0.93	0.47	0.96
7	Knn	0.55	0.69	0.62	0.71
8	glm	0.56	0.70	0.67	0.65
9	Moyenne totale	0.59	0.89	0.61	0.89



1.14 Fines Jointure SDP Max 60 minutes

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015236ba5ec0>
```

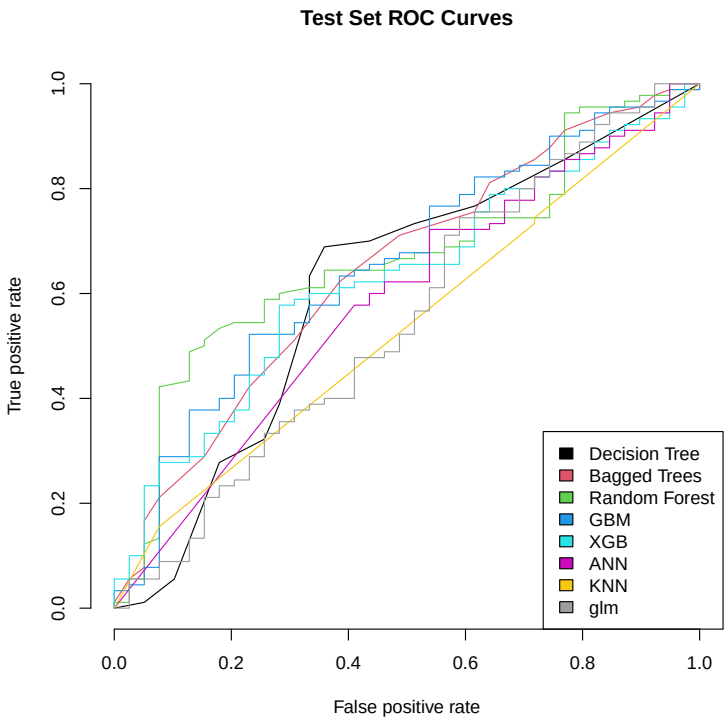
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.53	0.83	0.62	0.79
2	Bagged Trees	0.67	1.00	0.64	1.00
3	Random Forest	0.61	1.00	0.60	1.00
4	GBM	0.64	1.00	0.64	0.99
5	XGB	0.56	1.00	0.53	1.00
6	ANN	0.51	0.92	0.63	0.96
7	Knn	0.57	0.72	0.64	0.73
8	glm	0.56	0.70	0.64	0.68
9	Moyenne totale	0.58	0.90	0.62	0.89



1.15 Fines Jointure SDP Median 60 minutes

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015238a231d8>
```

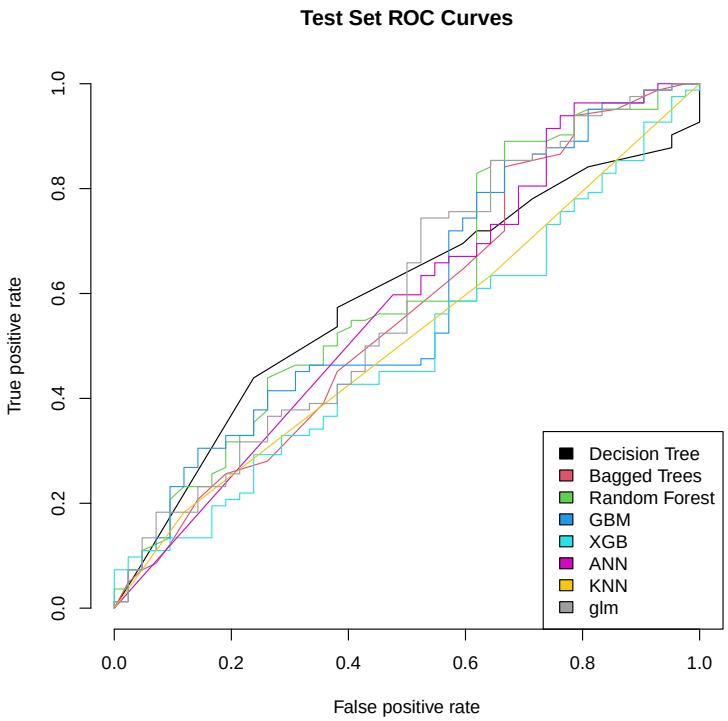
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.61	0.82	0.64	0.78
2	Bagged Trees	0.65	1.00	0.64	1.00
3	Random Forest	0.67	1.00	0.64	1.00
4	GBM	0.65	1.00	0.61	0.96
5	XGB	0.63	1.00	0.59	1.00
6	ANN	0.58	0.93	0.61	0.95
7	Knn	0.56	0.70	0.61	0.72
8	glm	0.55	0.68	0.67	0.66
9	Moyenne totale	0.61	0.89	0.63	0.88



1.16 Fines Jointure SDP Mean 10 minutes

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015237ca7c50>
```

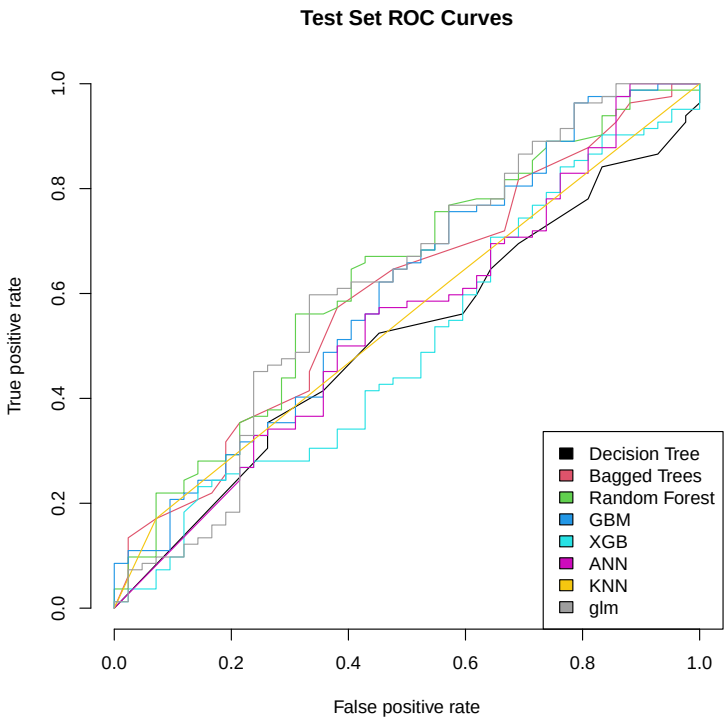
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.59	0.83	0.60	0.81
2	Bagged Trees	0.56	1.00	0.67	1.00
3	Random Forest	0.60	1.00	0.69	1.00
4	GBM	0.58	1.00	0.68	0.99
5	XGB	0.49	1.00	0.55	1.00
6	ANN	0.58	0.92	0.69	0.96
7	Knn	0.59	0.66	0.64	0.70
8	glm	0.59	0.70	0.67	0.68
9	Moyenne totale	0.57	0.89	0.65	0.89



1.17 Fines Jointure SDP Max 10 minutes

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x000001522bbdbd28>
```

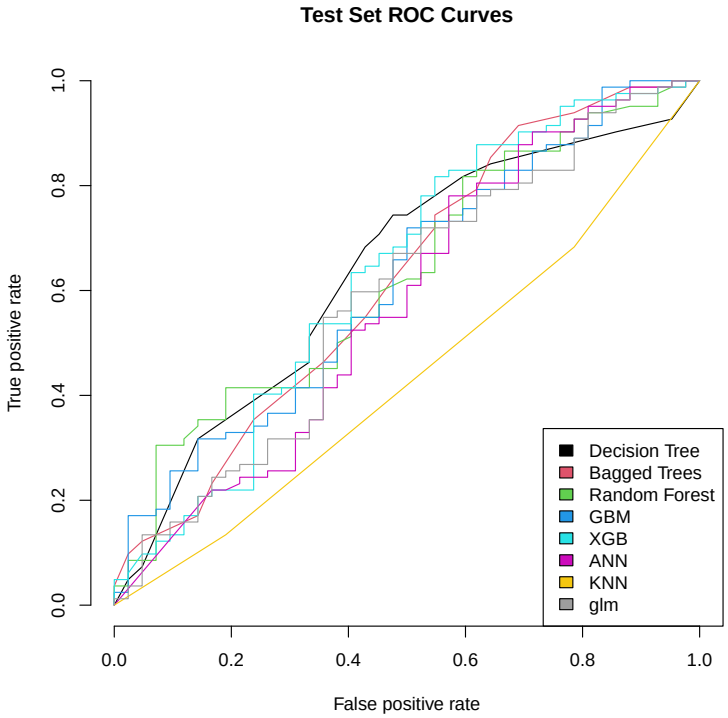
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.51	0.89	0.52	0.82
2	Bagged Trees	0.60	1.00	0.65	1.00
3	Random Forest	0.63	1.00	0.67	1.00
4	GBM	0.60	1.00	0.64	0.99
5	XGB	0.50	1.00	0.63	1.00
6	ANN	0.54	0.93	0.56	0.96
7	Knn	0.63	0.71	0.68	0.74
8	glm	0.62	0.70	0.67	0.70
9	Moyenne totale	0.58	0.90	0.63	0.90



1.18 Fines Jointure SDP Median 10 minutes

```
## X40µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x000001523968cd18>
```

	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.64	0.82	0.66	0.80
2	Bagged Trees	0.62	1.00	0.65	1.00
3	Random Forest	0.63	1.00	0.68	1.00
4	GBM	0.62	1.00	0.65	0.97
5	XGB	0.63	1.00	0.69	1.00
6	ANN	0.58	0.94	0.60	0.97
7	Knn	0.57	0.69	0.61	0.75
8	glm	0.59	0.70	0.65	0.69
9	Moyenne totale	0.61	0.89	0.65	0.90



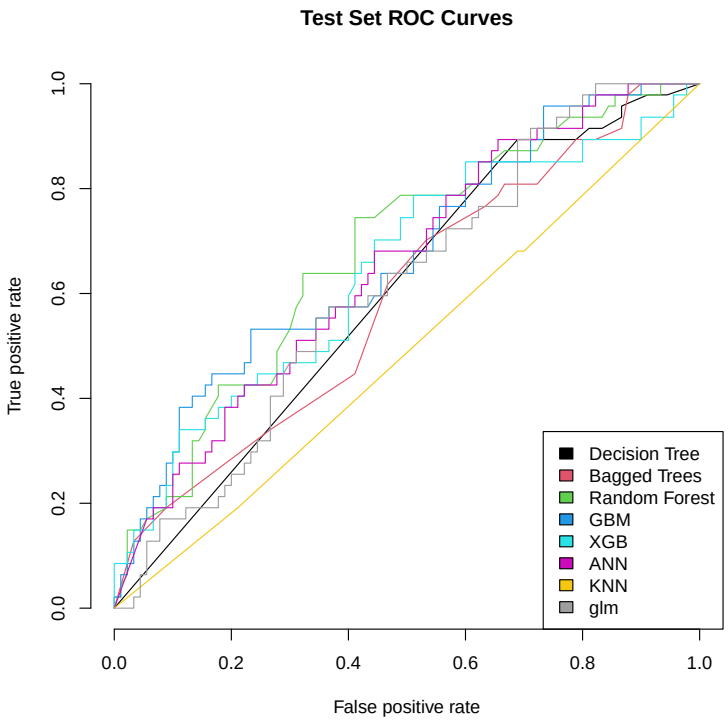
Chapitre 2

Les Gros Classification

2.1 Gros Jointure SDP Mean entre deux SDP

```
## X250µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x00000152359f73b0>
```

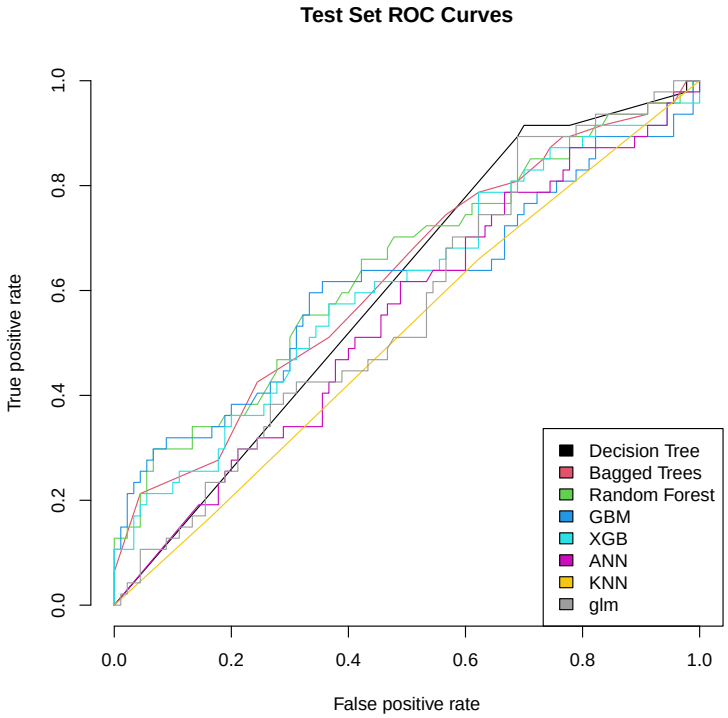
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.60	0.89	0.45	0.84
2	Bagged Trees	0.59	1.00	0.46	0.99
3	Random Forest	0.68	1.00	0.53	0.99
4	GBM	0.67	1.00	0.69	0.98
5	XGB	0.64	1.00	0.65	1.00
6	ANN	0.65	0.96	0.67	0.97
7	Knn	0.52	0.69	0.56	0.72
8	glm	0.61	0.75	0.47	0.70
9	Moyenne totale	0.62	0.91	0.56	0.90



2.2 Gros Jointure SDP Max entre deux SDP

```
## X250µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x00000152356f6c98>
```

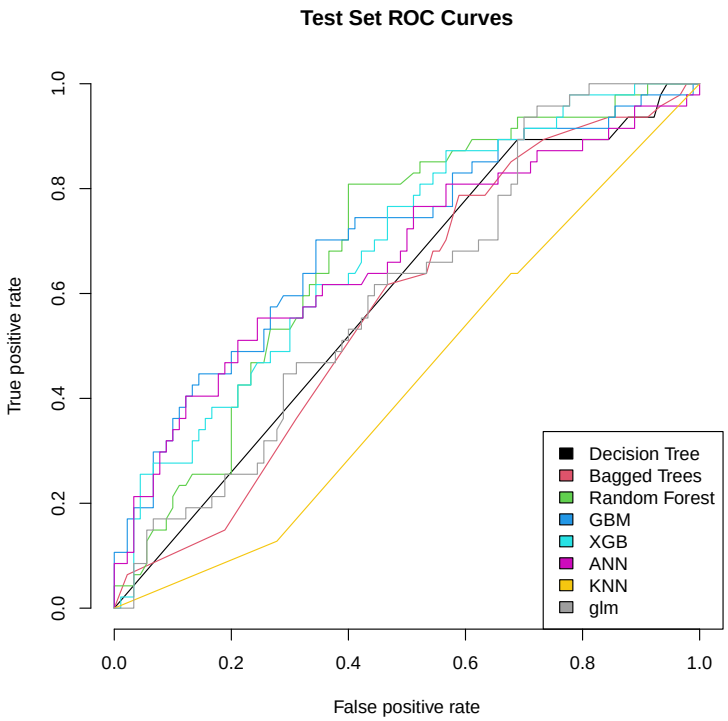
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.60	0.83	0.50	0.80
2	Bagged Trees	0.63	1.00	0.46	0.99
3	Random Forest	0.64	1.00	0.56	0.99
4	GBM	0.61	1.00	0.71	0.95
5	XGB	0.61	1.00	0.64	1.00
6	ANN	0.55	0.94	0.55	0.97
7	Knn	0.64	0.72	0.69	0.75
8	glm	0.57	0.70	0.47	0.69
9	Moyenne totale	0.61	0.90	0.57	0.89



2.3 Gros Jointure SDP Median entre deux SDP

```
## X250µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001523800c890>
```

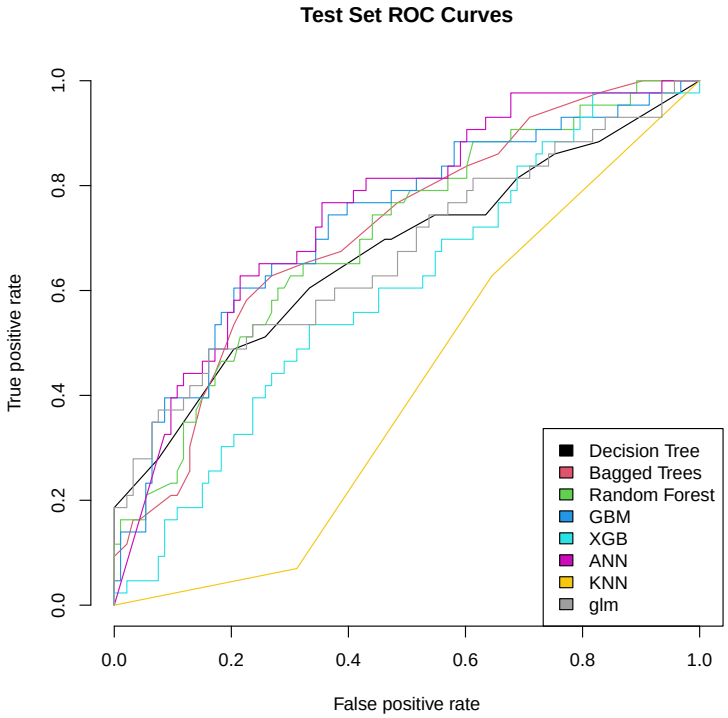
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.60	0.85	0.41	0.81
2	Bagged Trees	0.58	0.99	0.51	0.98
3	Random Forest	0.69	1.00	0.61	0.99
4	GBM	0.70	1.00	0.72	0.96
5	XGB	0.69	1.00	0.66	1.00
6	ANN	0.67	0.77	0.70	0.71
7	Knn	0.63	0.72	0.66	0.74
8	glm	0.60	0.75	0.49	0.70
9	Moyenne totale	0.64	0.88	0.59	0.86



2.4 Gros Jointure SDP Mean 60 minutes

```
## X250µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001522d614610>
```

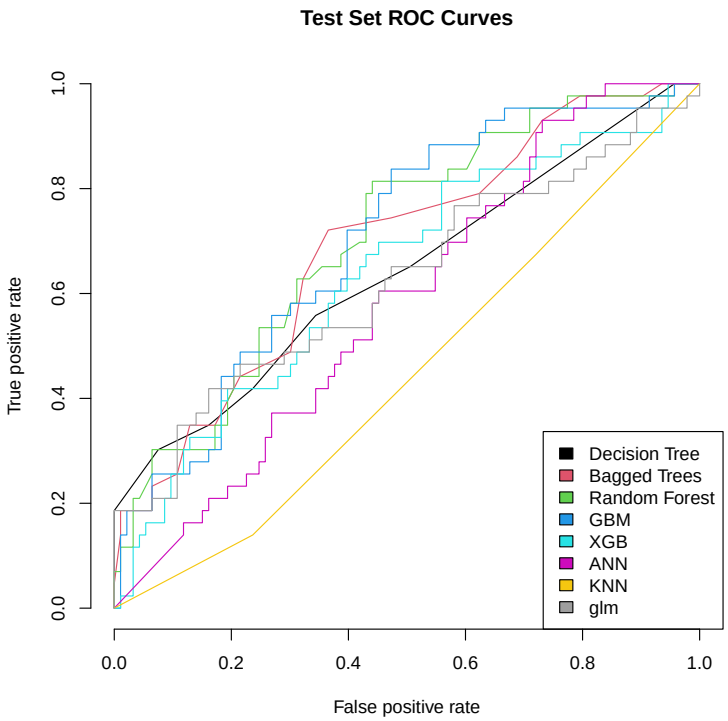
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.67	0.86	0.65	0.81
2	Bagged Trees	0.71	1.00	0.71	0.99
3	Random Forest	0.70	1.00	0.71	0.99
4	GBM	0.73	1.00	0.73	0.97
5	XGB	0.60	1.00	0.65	1.00
6	ANN	0.75	0.96	0.72	0.97
7	Knn	0.59	0.73	0.62	0.74
8	glm	0.67	0.70	0.74	0.69
9	Moyenne totale	0.68	0.90	0.69	0.89



2.5 Gros Jointure SDP Max 60 minutes

```
## X250µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x00000152326963d8>
```

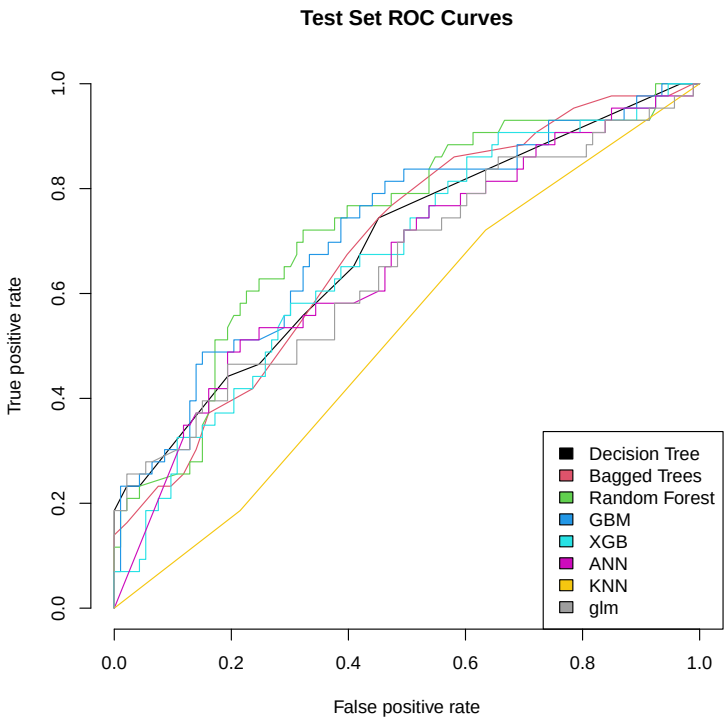
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.64	0.74	0.68	0.76
2	Bagged Trees	0.69	0.99	0.65	0.99
3	Random Forest	0.71	1.00	0.68	0.99
4	GBM	0.70	1.00	0.69	0.96
5	XGB	0.64	1.00	0.62	1.00
6	ANN	0.58	0.93	0.57	0.96
7	Knn	0.57	0.76	0.60	0.77
8	glm	0.62	0.72	0.68	0.69
9	Moyenne totale	0.65	0.89	0.65	0.89



2.6 Gros Jointure SDP Median 60 minutes

```
## X250µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x0000015232474df8>
```

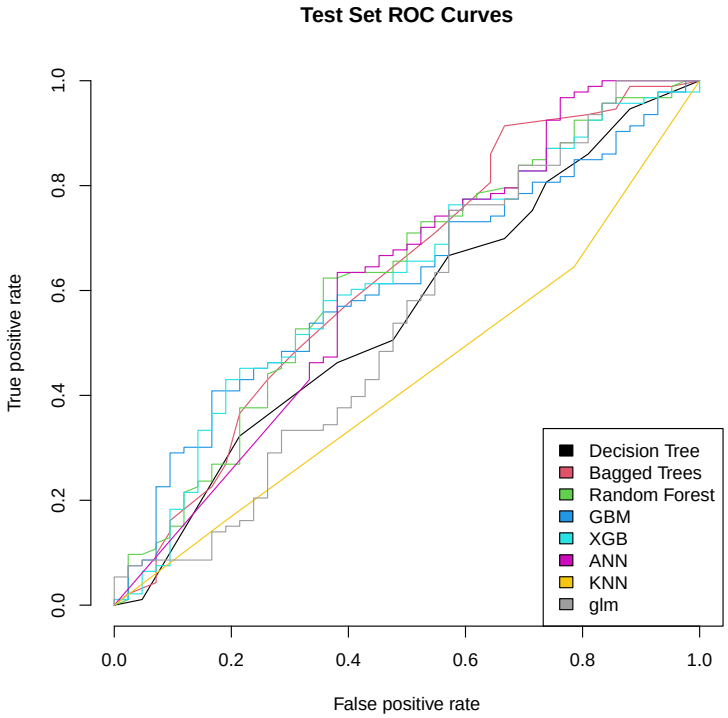
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.69	0.81	0.69	0.79
2	Bagged Trees	0.69	1.00	0.65	0.98
3	Random Forest	0.73	1.00	0.71	0.99
4	GBM	0.72	1.00	0.67	0.97
5	XGB	0.67	1.00	0.64	1.00
6	ANN	0.66	0.94	0.62	0.96
7	Knn	0.58	0.73	0.62	0.75
8	glm	0.65	0.69	0.74	0.67
9	Moyenne totale	0.67	0.90	0.67	0.89



2.7 Gros Jointure SDP Mean 10 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x000001522cb78770>
```

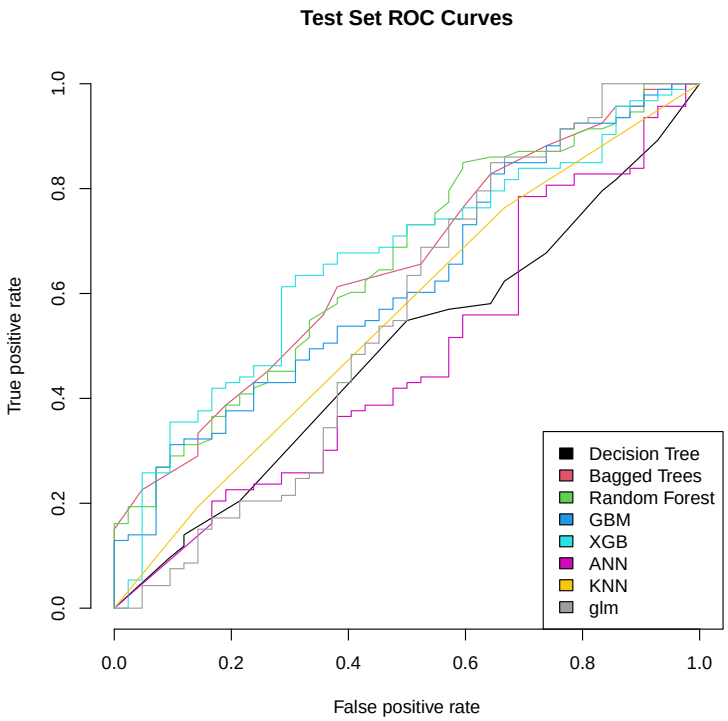
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.55	0.79	0.61	0.77
2	Bagged Trees	0.63	0.99	0.61	0.99
3	Random Forest	0.62	0.99	0.64	0.99
4	GBM	0.61	1.00	0.61	0.97
5	XGB	0.62	1.00	0.59	1.00
6	ANN	0.61	0.93	0.63	0.96
7	Knn	0.55	0.73	0.60	0.75
8	glm	0.54	0.69	0.67	0.66
9	Moyenne totale	0.59	0.89	0.62	0.89



2.8 Gros Jointure SDP Max 10 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x0000015236d19a50>
```

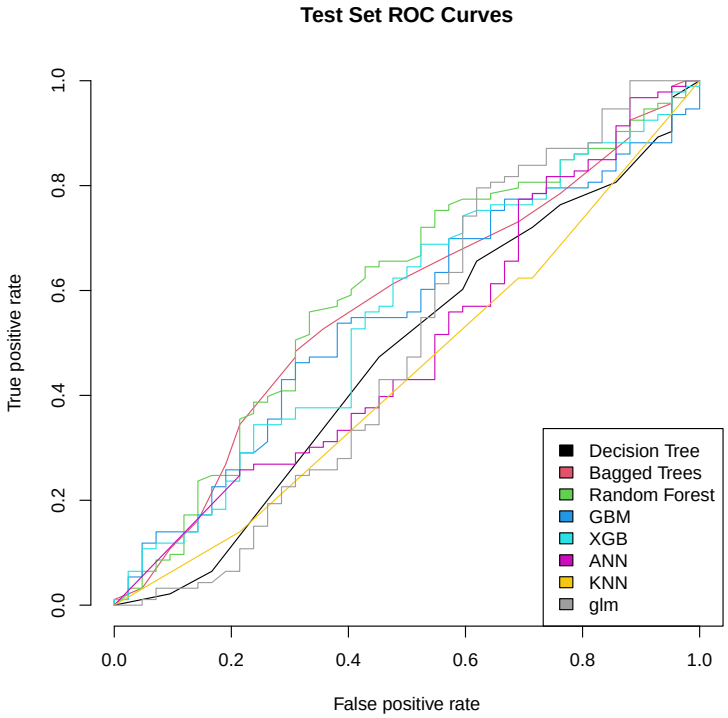
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.49	0.79	0.51	0.76
2	Bagged Trees	0.65	0.99	0.65	0.99
3	Random Forest	0.66	0.99	0.67	0.99
4	GBM	0.62	1.00	0.62	0.97
5	XGB	0.66	1.00	0.65	1.00
6	ANN	0.48	0.95	0.39	0.97
7	Knn	0.60	0.73	0.65	0.75
8	glm	0.55	0.70	0.70	0.66
9	Moyenne totale	0.59	0.89	0.61	0.89



2.9 Gros Jointure SDP Median 10 minutes

```
## X40µm ~ Poste + Qualité + Débit_CV004 + Dilution_SB002 + Arrosage_Crible_SC003 +
##     Dilution_HP14 + Dilution_HP15 + Dilution_HP18 + Dilution_HP19 +
##     Pression_PK12 + Pression_PK13 + Pression_PK14 + Pression_PK16 +
##     Pression_PK18
## <environment: 0x0000015232f56418>
```

	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.48	0.80	0.59	0.78
2	Bagged Trees	0.57	0.99	0.59	0.99
3	Random Forest	0.60	0.99	0.66	0.99
4	GBM	0.55	0.99	0.59	0.97
5	XGB	0.56	1.00	0.57	1.00
6	ANN	0.50	0.90	0.41	0.94
7	Knn	0.53	0.70	0.57	0.73
8	glm	0.50	0.71	0.67	0.68
9	Moyenne totale	0.54	0.89	0.58	0.88



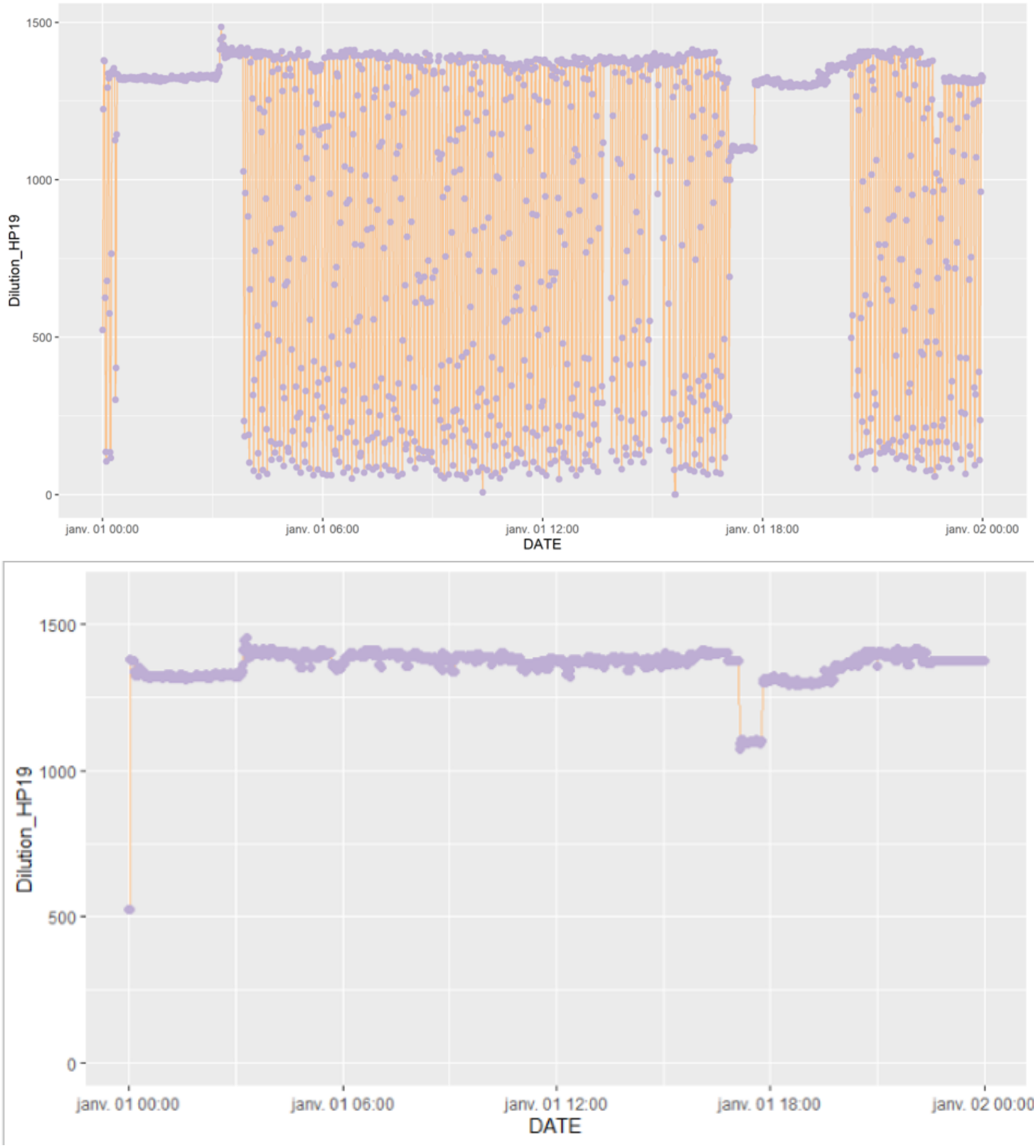
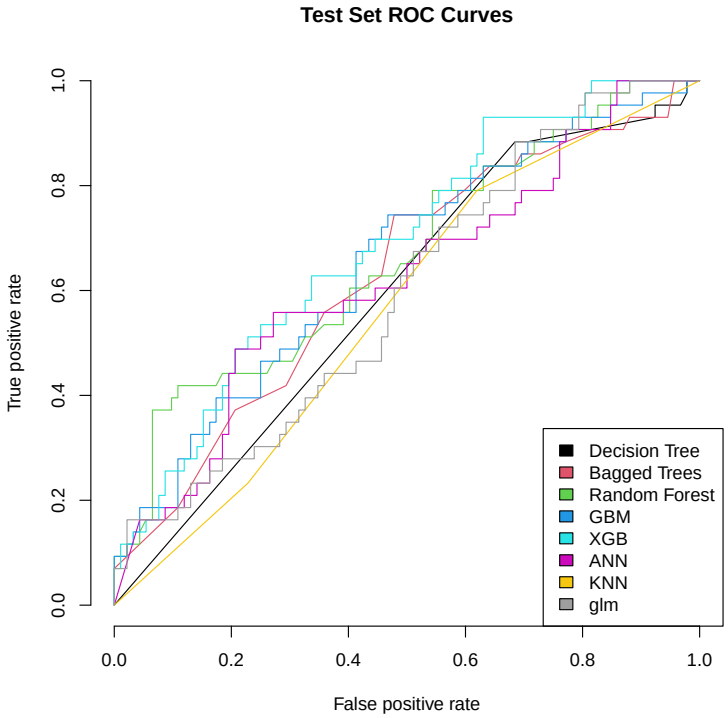


FIGURE 2.1 – Correction de la dilution du hopper 19

2.10 Gros Jointure SDP Mean entre deux SDP

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015237fec5d8>
```

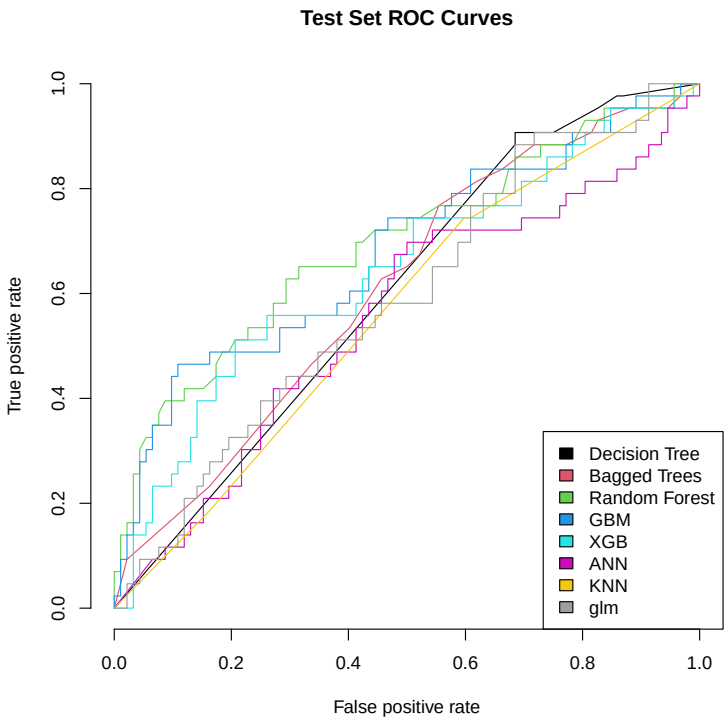
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.59	0.85	0.48	0.80
2	Bagged Trees	0.63	1.00	0.46	1.00
3	Random Forest	0.66	1.00	0.49	1.00
4	GBM	0.65	1.00	0.67	0.97
5	XGB	0.69	1.00	0.67	0.99
6	ANN	0.62	0.95	0.64	0.97
7	Knn	0.51	0.75	0.56	0.76
8	glm	0.60	0.73	0.44	0.69
9	Moyenne totale	0.62	0.91	0.55	0.90



2.11 Gros Jointure SDP Max entre deux SDP

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x000001523716f6e0>
```

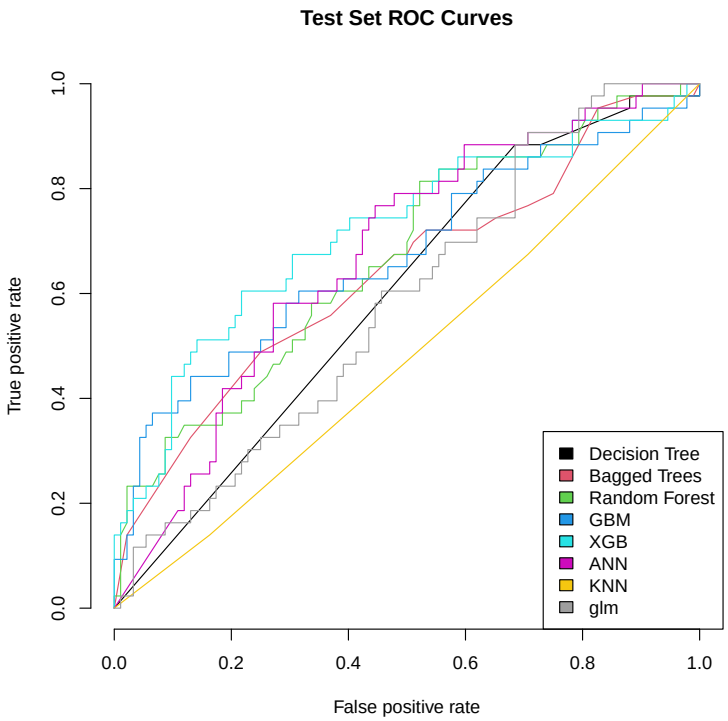
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.60	0.84	0.47	0.80
2	Bagged Trees	0.61	1.00	0.45	1.00
3	Random Forest	0.70	1.00	0.48	0.99
4	GBM	0.68	1.00	0.73	0.98
5	XGB	0.65	1.00	0.67	0.99
6	ANN	0.56	0.91	0.62	0.95
7	Knn	0.60	0.73	0.64	0.75
8	glm	0.59	0.73	0.46	0.73
9	Moyenne totale	0.62	0.90	0.56	0.90



2.12 Gros Jointure SDP Median entre deux SDP

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x00000152345dad28>
```

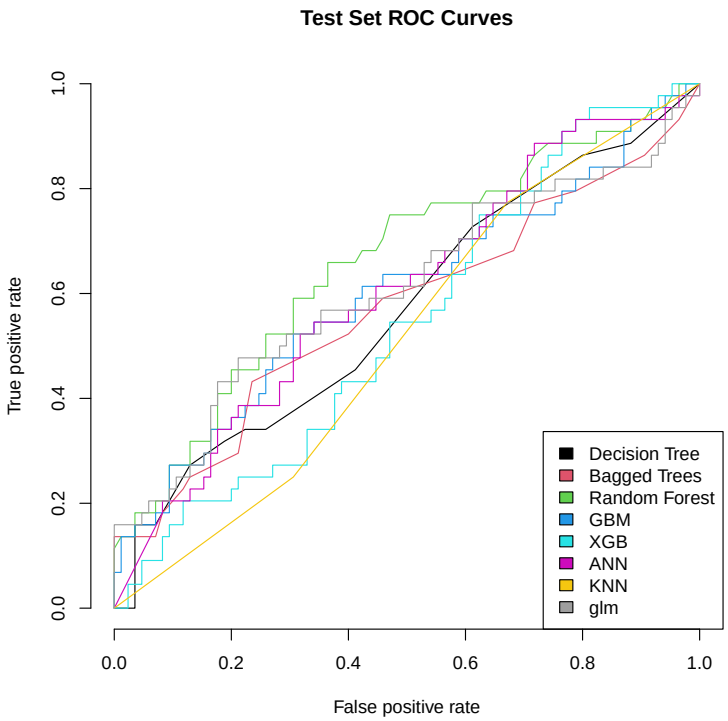
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.60	0.86	0.39	0.81
2	Bagged Trees	0.64	1.00	0.49	1.00
3	Random Forest	0.67	1.00	0.53	0.99
4	GBM	0.67	1.00	0.70	0.97
5	XGB	0.72	1.00	0.72	0.99
6	ANN	0.67	0.94	0.64	0.96
7	Knn	0.50	0.71	0.58	0.73
8	glm	0.58	0.71	0.42	0.70
9	Moyenne totale	0.63	0.90	0.56	0.90



2.13 Gros Jointure SDP Mean 60 minutes

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015229f46910>
```

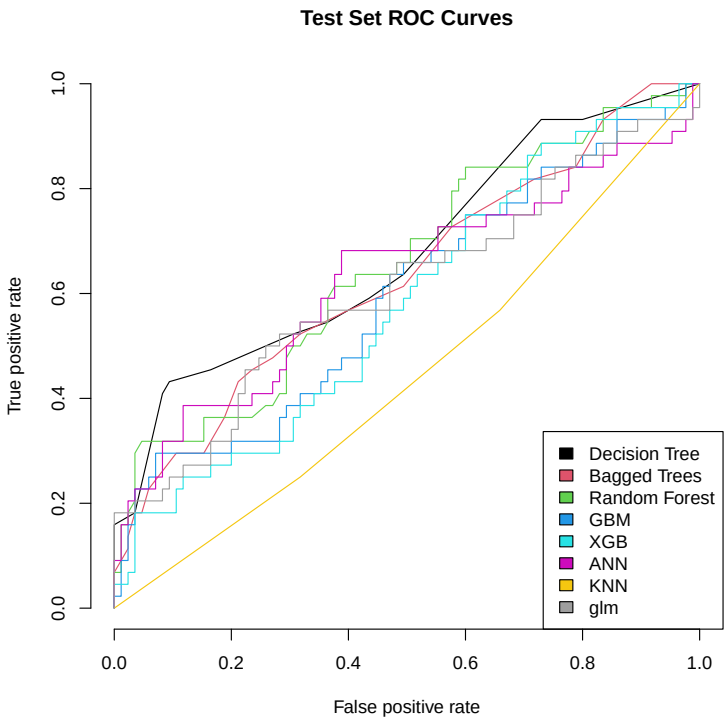
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.57	0.86	0.63	0.81
2	Bagged Trees	0.57	1.00	0.66	1.00
3	Random Forest	0.66	1.00	0.67	0.99
4	GBM	0.60	1.00	0.67	0.97
5	XGB	0.54	1.00	0.58	1.00
6	ANN	0.61	0.96	0.58	0.97
7	Knn	0.56	0.74	0.61	0.76
8	glm	0.61	0.74	0.67	0.71
9	Moyenne totale	0.59	0.91	0.63	0.90



2.14 Gros Jointure SDP Max 60 minutes

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015237a29e70>
```

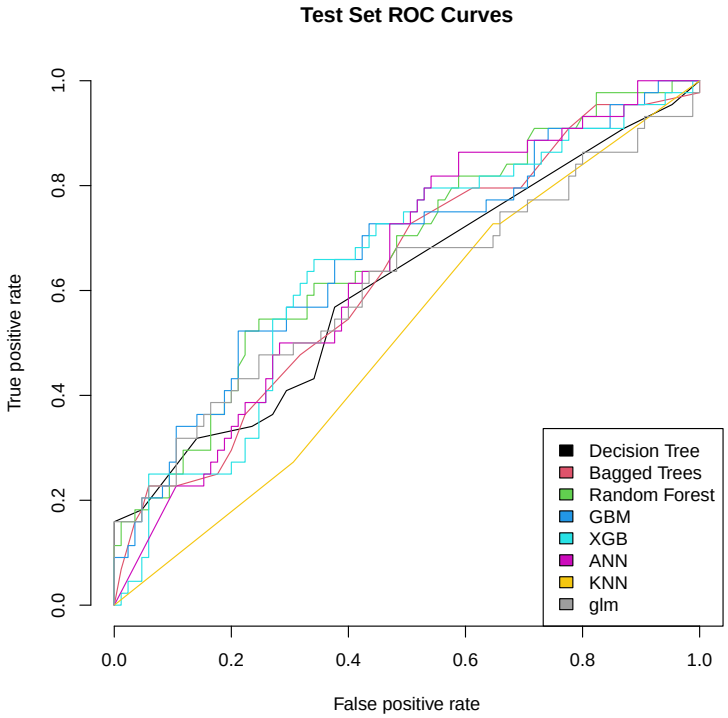
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.68	0.84	0.64	0.80
2	Bagged Trees	0.63	1.00	0.66	1.00
3	Random Forest	0.65	1.00	0.69	0.99
4	GBM	0.59	1.00	0.64	0.96
5	XGB	0.58	1.00	0.57	1.00
6	ANN	0.63	0.97	0.64	0.98
7	Knn	0.60	0.74	0.65	0.75
8	glm	0.61	0.75	0.67	0.72
9	Moyenne totale	0.62	0.91	0.65	0.90



2.15 Gros Jointure SDP Median 60 minutes

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x000001523e9f09f0>
```

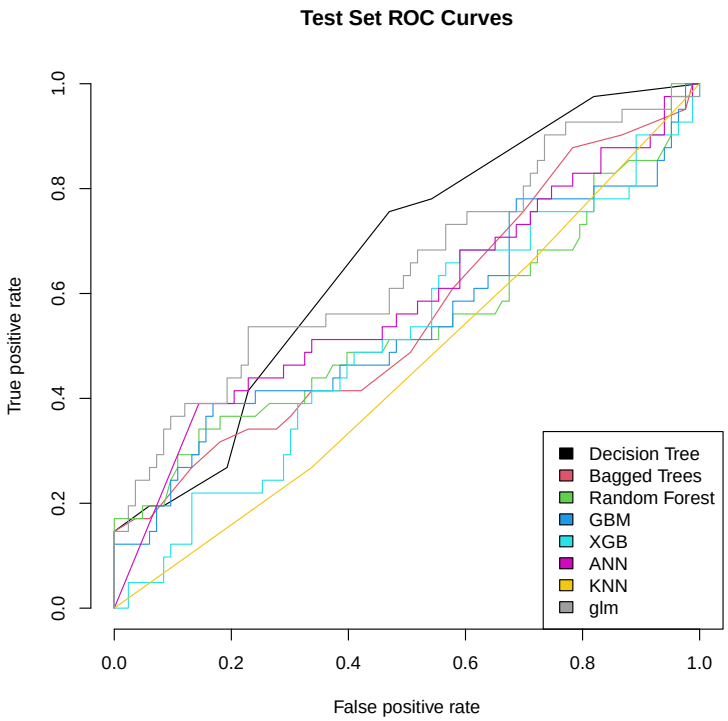
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.61	0.82	0.60	0.80
2	Bagged Trees	0.63	1.00	0.63	1.00
3	Random Forest	0.67	1.00	0.67	0.99
4	GBM	0.67	1.00	0.68	0.98
5	XGB	0.65	1.00	0.61	1.00
6	ANN	0.64	0.98	0.64	0.99
7	Knn	0.53	0.76	0.57	0.77
8	glm	0.61	0.74	0.68	0.70
9	Moyenne totale	0.63	0.91	0.64	0.90



2.16 Gros Jointure SDP Mean 10 minutes

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x000001523478a810>
```

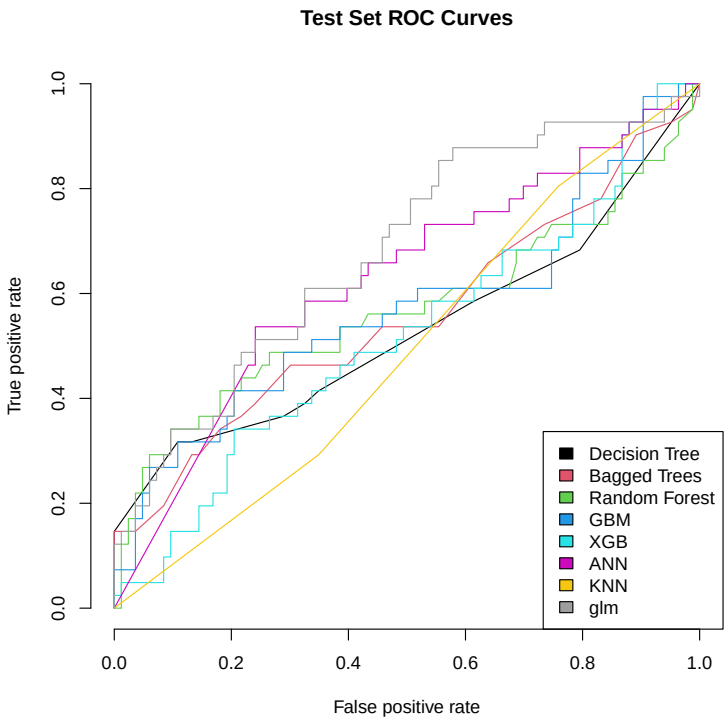
	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.67	0.83	0.63	0.80
2	Bagged Trees	0.56	1.00	0.65	1.00
3	Random Forest	0.54	1.00	0.67	0.99
4	GBM	0.54	1.00	0.68	0.97
5	XGB	0.51	1.00	0.56	1.00
6	ANN	0.59	0.97	0.49	0.98
7	Knn	0.47	0.73	0.55	0.76
8	glm	0.65	0.73	0.72	0.72
9	Moyenne totale	0.57	0.91	0.62	0.90



2.17 Gros Jointure SDP Max 10 minutes

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015236270468>
```

	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.53	0.86	0.58	0.80
2	Bagged Trees	0.56	1.00	0.66	1.00
3	Random Forest	0.57	1.00	0.70	0.99
4	GBM	0.57	1.00	0.68	0.98
5	XGB	0.52	1.00	0.65	1.00
6	ANN	0.63	0.94	0.52	0.97
7	Knn	0.47	0.79	0.53	0.81
8	glm	0.68	0.76	0.71	0.72
9	Moyenne totale	0.56	0.92	0.63	0.91



2.18 Gros Jointure SDP Median 10 minutes

```
## X250µm ~ Poste + Qualité + retart + dure + Débit_CV004 + Dilution_SB002 +
##     Arrosage_Crible_SC003 + Dilution_HP14 + Dilution_HP15 + Dilution_HP18 +
##     Dilution_HP19 + Pression_PK12 + Pression_PK13 + Pression_PK14 +
##     Pression_PK16 + Pression_PK18
## <environment: 0x0000015235ab3ca0>
```

	Methode	AUC_test	AUC_train	accuracy_test	accuracy_train
1	Decision Tree	0.56	0.78	0.59	0.78
2	Bagged Trees	0.67	1.00	0.65	0.99
3	Random Forest	0.61	1.00	0.68	0.99
4	GBM	0.57	1.00	0.65	0.97
5	XGB	0.57	1.00	0.60	1.00
6	ANN	0.55	0.99	0.65	0.99
7	Knn	0.50	0.76	0.56	0.79
8	glm	0.66	0.73	0.71	0.72
9	Moyenne totale	0.59	0.91	0.64	0.90