**###FE#**

Recursive feature selection

Outer resampling method: Cross-Validated (5 fold, repeated 3 times)

Resampling performance over subset size:

Variables RMSE Rsquared MAE RMSESD RsquaredSD MAESD Selected

1 0.6860 0.2529 0.5955 0.12856 0.2784 0.12749

2 0.6352 0.3462 0.5445 0.10655 0.3413 0.10073

3 0.6100 0.3714 0.5283 0.09586 0.3556 0.07421

4 0.5867 0.3796 0.5068 0.09035 0.3440 0.06403

5 0.5834 0.3436 0.5047 0.11143 0.3311 0.07644

6 0.5946 0.3281 0.5207 0.11110 0.3239 0.08313

7 0.5842 0.3275 0.5107 0.12653 0.3097 0.09917

8 0.5795 0.2936 0.5034 0.12493 0.2703 0.09379

9 0.5820 0.2954 0.5082 0.13678 0.2842 0.10738

10 0.5679 0.3536 0.5000 0.13625 0.3046 0.10280

11 0.5666 0.3842 0.4997 0.13601 0.3604 0.10631

12 0.5682 0.3869 0.5016 0.13108 0.3506 0.10350

13 0.5648 0.3792 0.5011 0.12830 0.3553 0.10038 \*

14 0.5760 0.3390 0.5130 0.12642 0.3636 0.10014

15 0.5748 0.3510 0.5150 0.12320 0.3541 0.10160

16 0.5719 0.3504 0.5079 0.13217 0.3573 0.10733

17 0.5712 0.3370 0.5065 0.13254 0.3662 0.10723

18 0.5754 0.2977 0.5115 0.14493 0.3389 0.12546

19 0.5757 0.3216 0.5116 0.13471 0.3667 0.11201

20 0.5763 0.3399 0.5133 0.14230 0.3604 0.12219

21 0.5804 0.2924 0.5140 0.14019 0.3220 0.11721

22 0.5836 0.3129 0.5176 0.13392 0.3713 0.11289

23 0.5822 0.3109 0.5142 0.13963 0.3587 0.11907

24 0.5843 0.2963 0.5180 0.13886 0.3599 0.11234

The top 5 variables (out of 13):

aoi\_dem\_clip\_khavr, Clay\_khavr, Sand\_khavr, satind\_mean\_kh, ProflCur\_kh

> predictors(result\_rfe1)

[1] "aoi\_dem\_clip\_khavr" "Clay\_khavr"

[3] "Sand\_khavr" "satind\_mean\_kh"

[5] "ProflCur\_kh" "sgsi\_mean\_kh"

[7] "Twi\_kh" "bio\_1\_khavr"

[9] "slope\_kh" "SGSI\_Mean\_Sentinel\_khavr"

[11] "Saturation\_Mean\_Sentinel\_khavr" "ndvi\_mean\_kh"

[13] "bio\_12\_khavr"

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| **########MN##########**  Recursive feature selection  Outer resampling method: Cross-Validated (5 fold, repeated 3 times)  Resampling performance over subset size:  Variables RMSE Rsquared MAE RMSESD RsquaredSD MAESD Selected  1 4.646 0.4592 3.778 2.986 0.3152 2.390  2 4.470 0.4389 3.692 2.826 0.3840 2.148  3 4.548 0.3832 3.741 2.705 0.3598 2.012  4 4.375 0.3921 3.584 2.683 0.3297 1.961 \*  5 4.614 0.3594 3.751 2.614 0.3620 1.869  6 4.773 0.2595 3.843 2.645 0.2872 1.961  7 4.727 0.2558 3.789 2.510 0.2465 1.788  8 4.603 0.2847 3.663 2.563 0.2572 1.856  9 4.783 0.2850 3.869 2.570 0.2534 1.900  10 4.836 0.2663 3.892 2.570 0.2659 1.903  11 4.758 0.3201 3.853 2.534 0.2833 1.887  12 4.791 0.2798 3.858 2.573 0.2491 1.950  13 4.735 0.3098 3.808 2.582 0.2596 1.957  14 4.680 0.3305 3.799 2.594 0.3044 1.932  15 4.720 0.2779 3.836 2.582 0.2362 1.929  16 4.663 0.2988 3.793 2.662 0.2683 1.963  17 4.597 0.2796 3.744 2.671 0.2758 1.965  18 4.615 0.3085 3.761 2.756 0.3203 2.060  19 4.612 0.3242 3.777 2.744 0.2903 2.047  20 4.566 0.3032 3.723 2.754 0.3308 2.057  21 4.659 0.2865 3.798 2.661 0.2767 1.984  22 4.596 0.2851 3.722 2.715 0.3003 2.034  23 4.493 0.3128 3.656 2.755 0.3229 2.049  24 4.460 0.3308 3.616 2.814 0.3284 2.137  The top 4 variables (out of 4):  bio\_1\_khavr, pH\_khavr, bio\_15\_khavr, PlanCur\_kh |
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| |  | | --- | | > > predictors(result\_rfe1)  [1] "bio\_1\_khavr" "pH\_khavr" "bio\_15\_khavr" "PlanCur\_kh" | |

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Recursive feature selection

Outer resampling method: Cross-Validated (5 fold, repeated 3 times)

Resampling performance over subset size:

Variables RMSE Rsquared MAE RMSESD RsquaredSD MAESD Selected

1 5.235 0.2337 3.968 1.253 0.1974 1.1548

2 4.568 0.2473 3.510 1.422 0.2844 1.1081

3 4.238 0.3328 3.291 1.631 0.3399 1.3057

4 4.167 0.3825 3.201 1.417 0.2876 1.0736

5 3.941 0.3851 3.021 1.454 0.3327 1.1154

6 4.004 0.3673 3.079 1.429 0.3433 1.1128

7 3.888 0.4127 3.015 1.443 0.3093 1.0665

8 3.878 0.4393 3.024 1.347 0.3101 1.0177

9 3.810 0.4775 2.965 1.342 0.3439 0.9748

10 3.854 0.4702 3.010 1.366 0.3311 0.9937

11 3.733 0.4883 2.900 1.304 0.3288 0.9216

12 3.755 0.4873 2.901 1.292 0.3483 0.8785

13 3.673 0.4746 2.852 1.327 0.3345 0.9138

14 3.688 0.5052 2.861 1.280 0.3386 0.8496

15 3.703 0.5102 2.858 1.261 0.3335 0.8734

16 3.648 0.5011 2.821 1.258 0.3368 0.8649

17 3.633 0.5001 2.820 1.279 0.3216 0.8889

18 3.672 0.4491 2.853 1.263 0.3312 0.8383

19 3.621 0.4690 2.819 1.255 0.3427 0.8615 \*

20 3.634 0.4791 2.815 1.298 0.3247 0.8730

21 3.693 0.4568 2.873 1.324 0.3352 0.9019

22 3.657 0.4676 2.868 1.280 0.3368 0.8549

23 3.678 0.4479 2.896 1.270 0.3461 0.8615

24 3.689 0.4518 2.875 1.262 0.3311 0.8424

The top 5 variables (out of 19):

pH\_khavr, gndvi\_mean\_kh, Sand\_khavr, bio\_1\_khavr, Clay\_khavr

> predictors(result\_rfe1)

[1] "pH\_khavr" "gndvi\_mean\_kh"

[3] "Sand\_khavr" "bio\_1\_khavr"

[5] "Clay\_khavr" "aoi\_dem\_clip\_khavr"

[7] "GNDVI\_Mean\_Sentinel\_khavr" "ci\_mean\_kh"

[9] "ndvi\_mean\_kh" "NDVI\_Mean\_Sentinel\_khavr"

[11] "bio\_12\_khavr" "FlowAcc\_kh"

[13] "ClayInd\_Mean\_Sentinel\_khavr" "Saturation\_Mean\_Sentinel\_khavr"

[15] "satind\_mean\_kh" "ProflCur\_kh"

[17] "spi\_kh" "bio\_15\_khavr"

[19] "sgsi\_mean\_kh"

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| Recursive feature selection  Outer resampling method: Cross-Validated (5 fold, repeated 3 times)  Resampling performance over subset size:  Variables RMSE Rsquared MAE RMSESD RsquaredSD MAESD Selected  1 0.3501 0.4484 0.3024 0.1437 0.3273 0.12985  2 0.3041 0.2789 0.2689 0.1311 0.3185 0.12049  3 0.3009 0.2692 0.2643 0.1120 0.2914 0.10497  4 0.2887 0.4175 0.2533 0.1240 0.3084 0.11211  5 0.2908 0.5044 0.2559 0.1201 0.3917 0.10979  6 0.2839 0.3839 0.2499 0.1200 0.3727 0.10801  7 0.2814 0.4349 0.2466 0.1263 0.3401 0.11582  8 0.2794 0.4565 0.2454 0.1179 0.3821 0.10837  9 0.2731 0.4129 0.2396 0.1200 0.3139 0.10794  10 0.2675 0.4606 0.2320 0.1204 0.3274 0.10808  11 0.2635 0.2943 0.2245 0.1156 0.2797 0.10395  12 0.2632 0.2719 0.2233 0.1156 0.2945 0.10452  13 0.2597 0.3411 0.2198 0.1173 0.2835 0.10506  14 0.2535 0.3018 0.2135 0.1136 0.3228 0.10346  15 0.2569 0.2978 0.2150 0.1146 0.3028 0.10290  16 0.2533 0.2932 0.2127 0.1147 0.2430 0.10376  17 0.2532 0.3187 0.2134 0.1156 0.2660 0.10471  18 0.2554 0.3252 0.2132 0.1176 0.2758 0.10522  19 0.2493 0.3370 0.2083 0.1169 0.3031 0.10514 \*  20 0.2532 0.3209 0.2094 0.1106 0.3263 0.09963  21 0.2546 0.3266 0.2107 0.1115 0.3091 0.10092  22 0.2519 0.3559 0.2073 0.1142 0.3223 0.10367  23 0.2514 0.3899 0.2076 0.1116 0.3511 0.09973  24 0.2531 0.3791 0.2078 0.1142 0.3127 0.10283  The top 5 variables (out of 19):  bio\_12\_khavr, srad\_khavr, Twi\_kh, bio\_1\_khavr, Clay\_khavr  > predictors(result\_rfe1)  [1] "bio\_12\_khavr" "srad\_khavr"  [3] "Twi\_kh" "bio\_1\_khavr"  [5] "Clay\_khavr" "satind\_mean\_kh"  [7] "gndvi\_mean\_kh" "bio\_15\_khavr"  [9] "FlowAcc\_kh" "sgsi\_mean\_kh"  [11] "ci\_mean\_kh" "ndvi\_mean\_kh"  [13] "spi\_kh" "GNDVI\_Mean\_Sentinel\_khavr"  [15] "NDVI\_Mean\_Sentinel\_khavr" "PlanCur\_kh"  [17] "aoi\_dem\_clip\_khavr" "SGSI\_Mean\_Sentinel\_khavr"  [19] "Sand\_khavr" |
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