

# Indonesia - Area inquiry vs. GPS analysis, Exploratory Analysis

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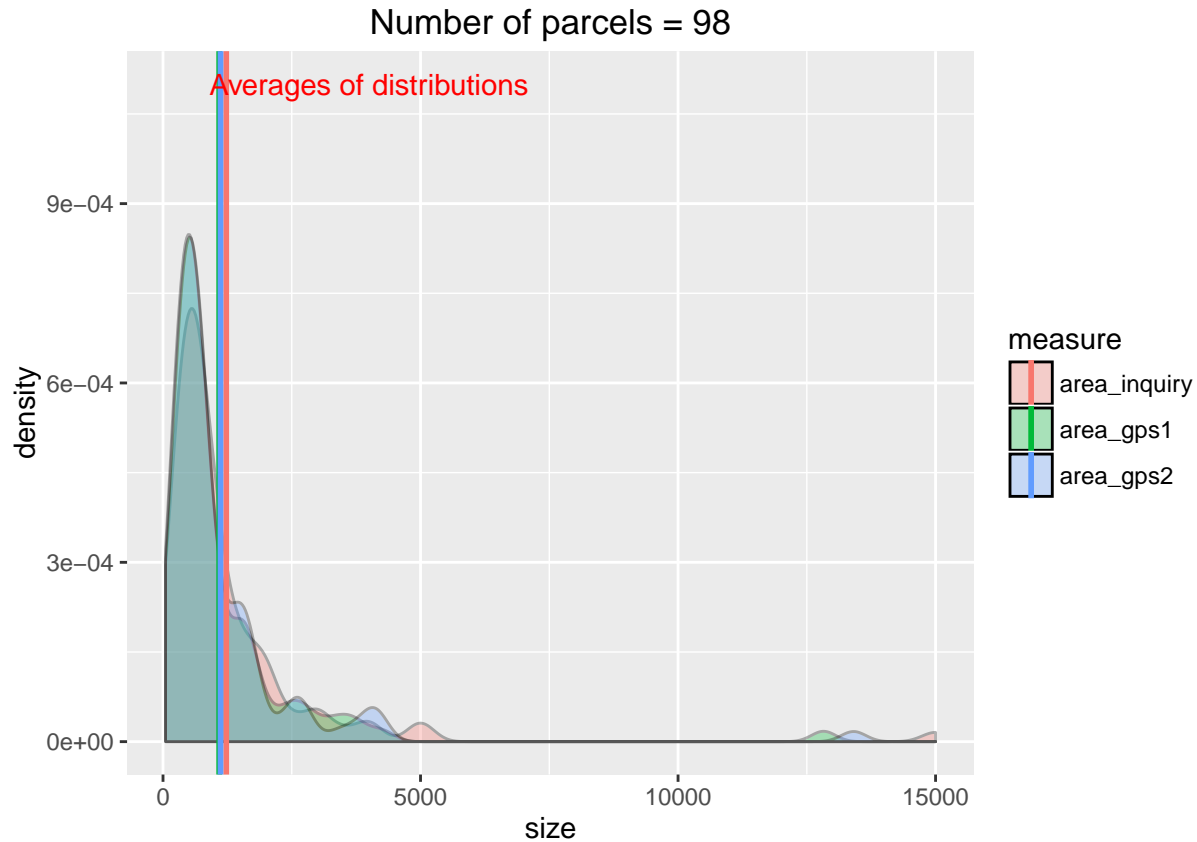
*1 March 2016*

## Details of Sample in Gunung Kidul

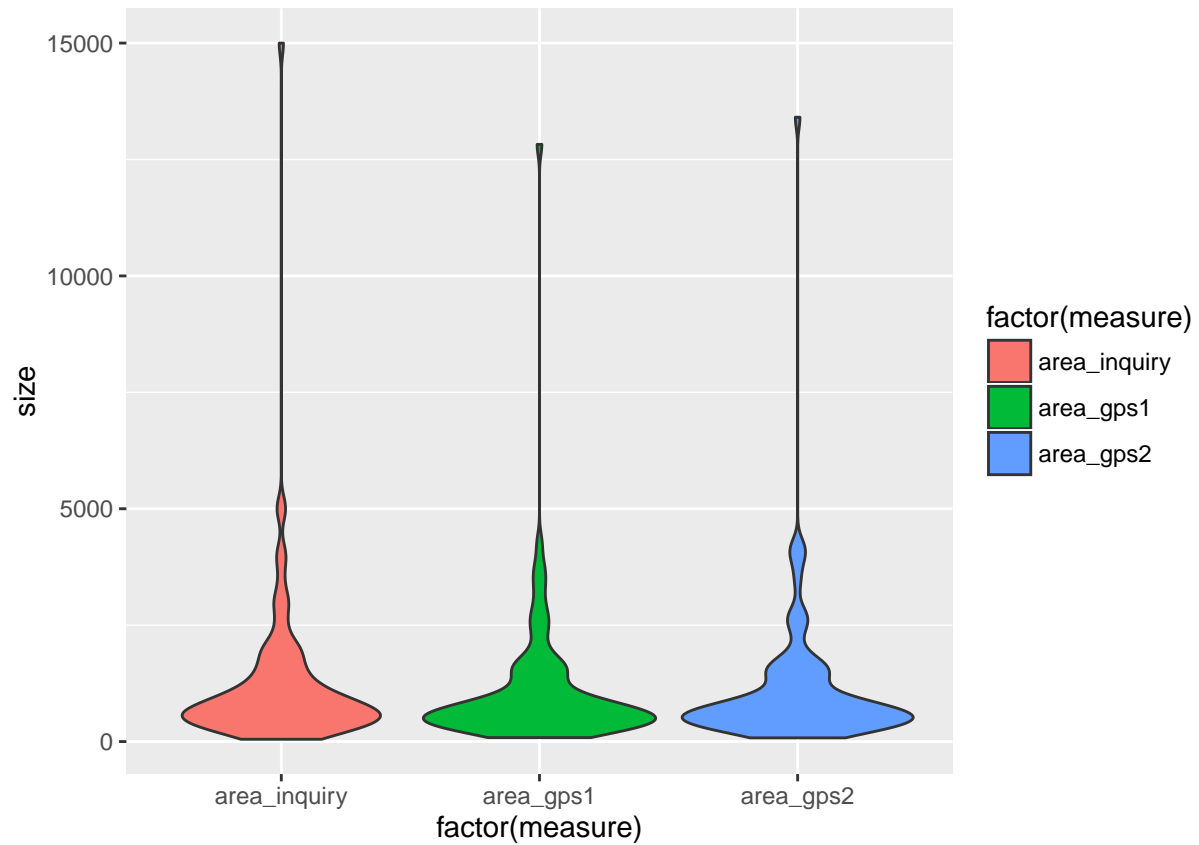
The total number of households surveyed was 201. These households owned 309 parcels and had an average number of 2.8197674 family members. On average, 2.2674419 family members were involved in agricultural.

The number of households sampled to receive both farmer inquiry and gps area measures were 81.

The histogram has a comparison in the distribution of parcel sizes comparing area measure with GPS (area\_gps1, area\_gps2), and farmer inquiry (area\_inquiry). The distribution for area\_inquiry seems to be slightly to the right and infact the mean of the farmer inquiry variable is slightly to the right.

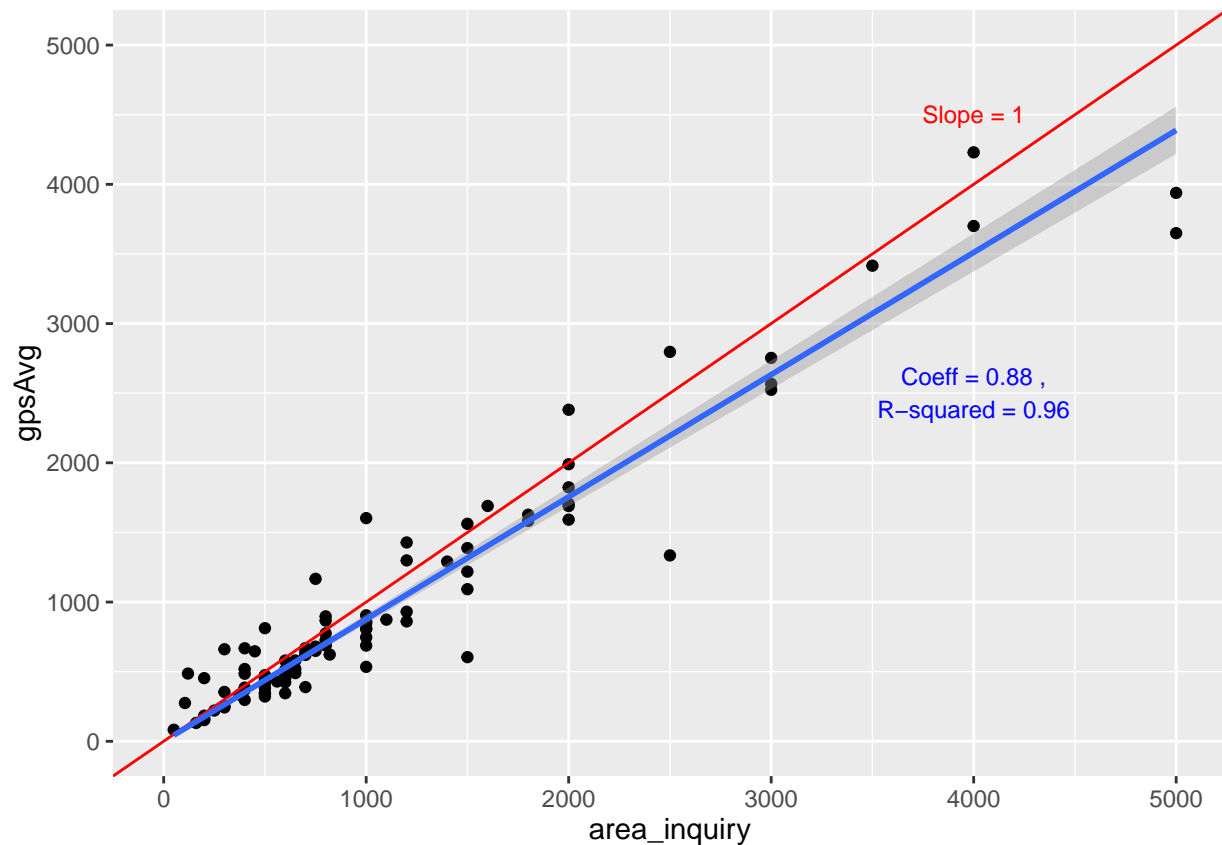


The dispersion of the farmer inquiry variable is wider than the GPS measures.



## Analysis of differences between average gps measure and farmer inquiry

Notably, plots with  $\text{gpsAvg} > 10,000$  meters have been removed. There is a



There seems to be a few very large plots which maybe can be removed for further analysis. The cumulative distribution of parcel sizes looks like

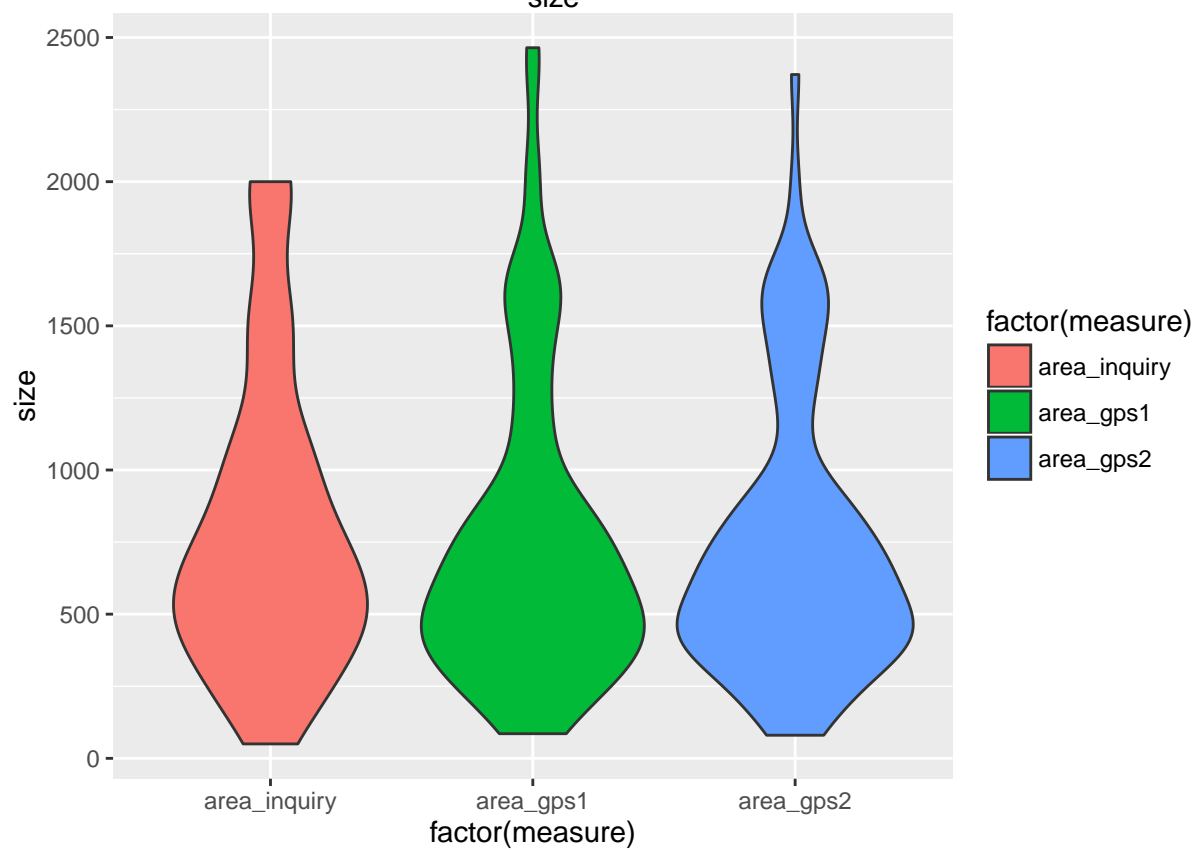
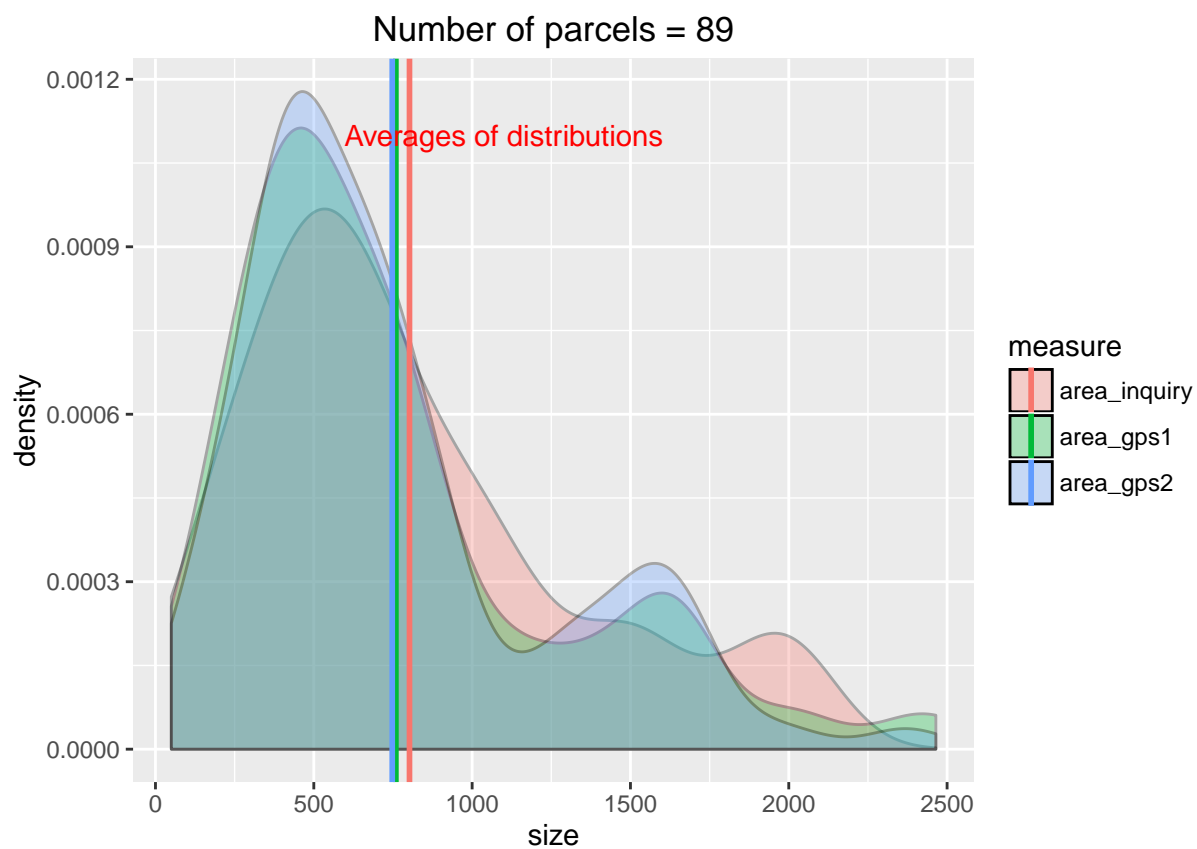
##	0%	10%	20%	30%	40%	50%	60%
##	50.000	284.012	400.000	478.671	584.796	681.650	809.120
##	70%	80%	90%	100%			
##	1071.632	1567.678	2489.344	15000.000			

Since 90% of the plots are less than 2500 meters, let's compare the distributions of the three methods for just these smaller plots.

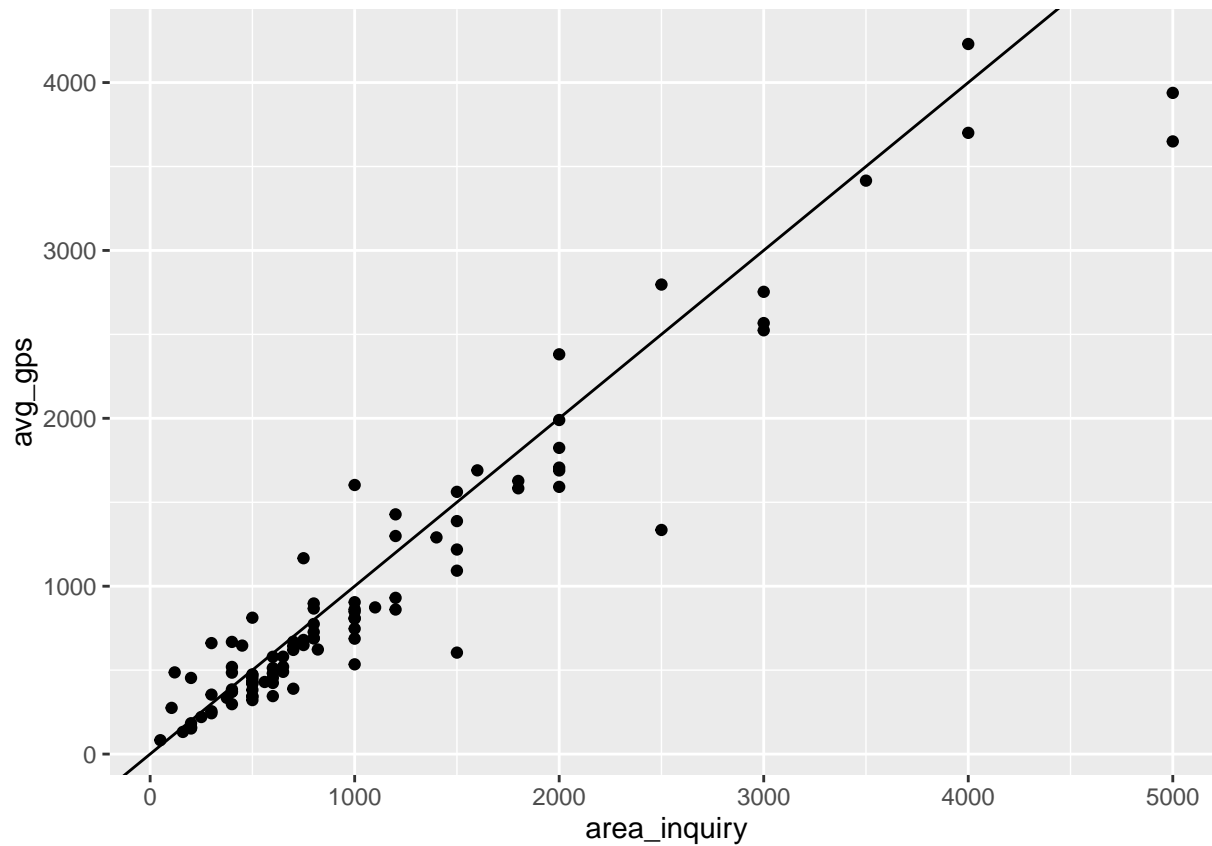
## Distribution of plot sizes less than 2500 meters

The vertical lines show the means of the distributions. There seems to be slight upward bias for with the farmer inquiry method.

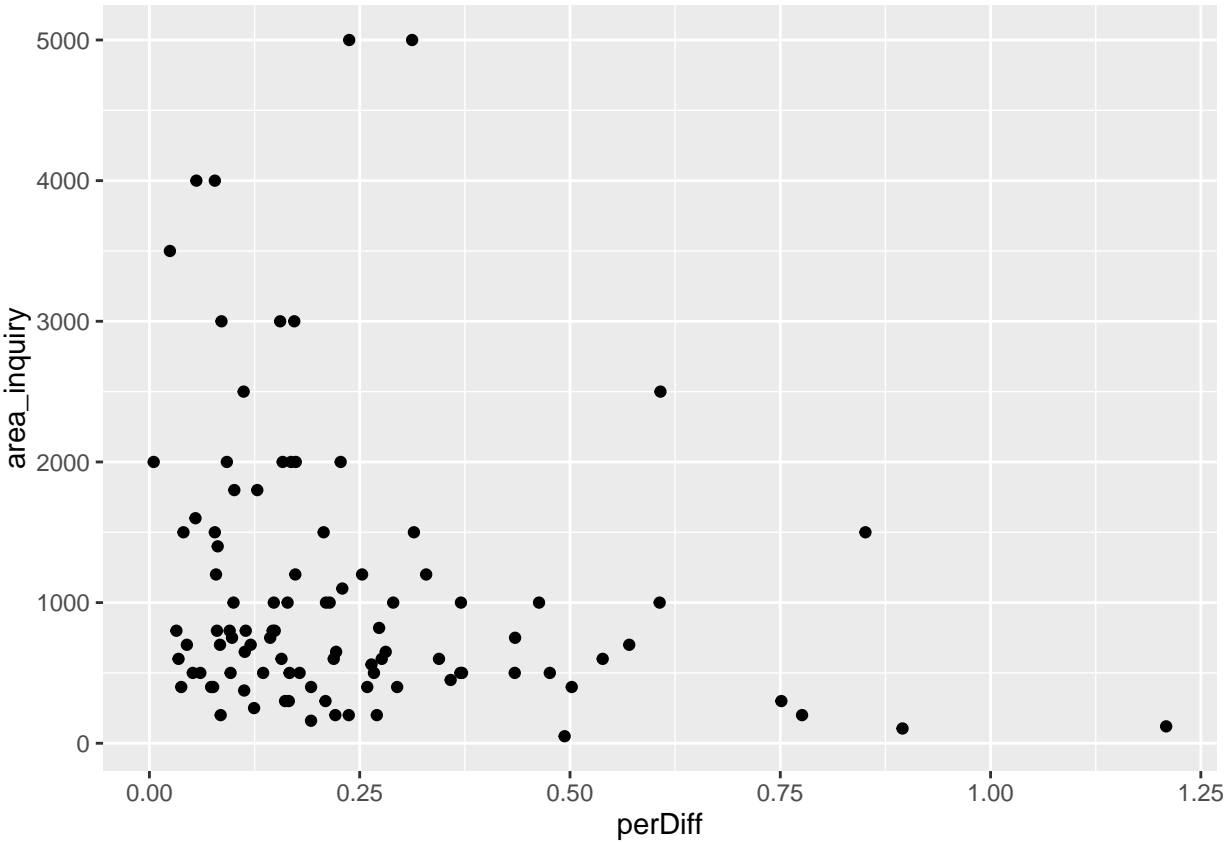
Also, the violin chart indicates that the disbursement of measurements taken with the gps unit is much wider than famrer inquiry.

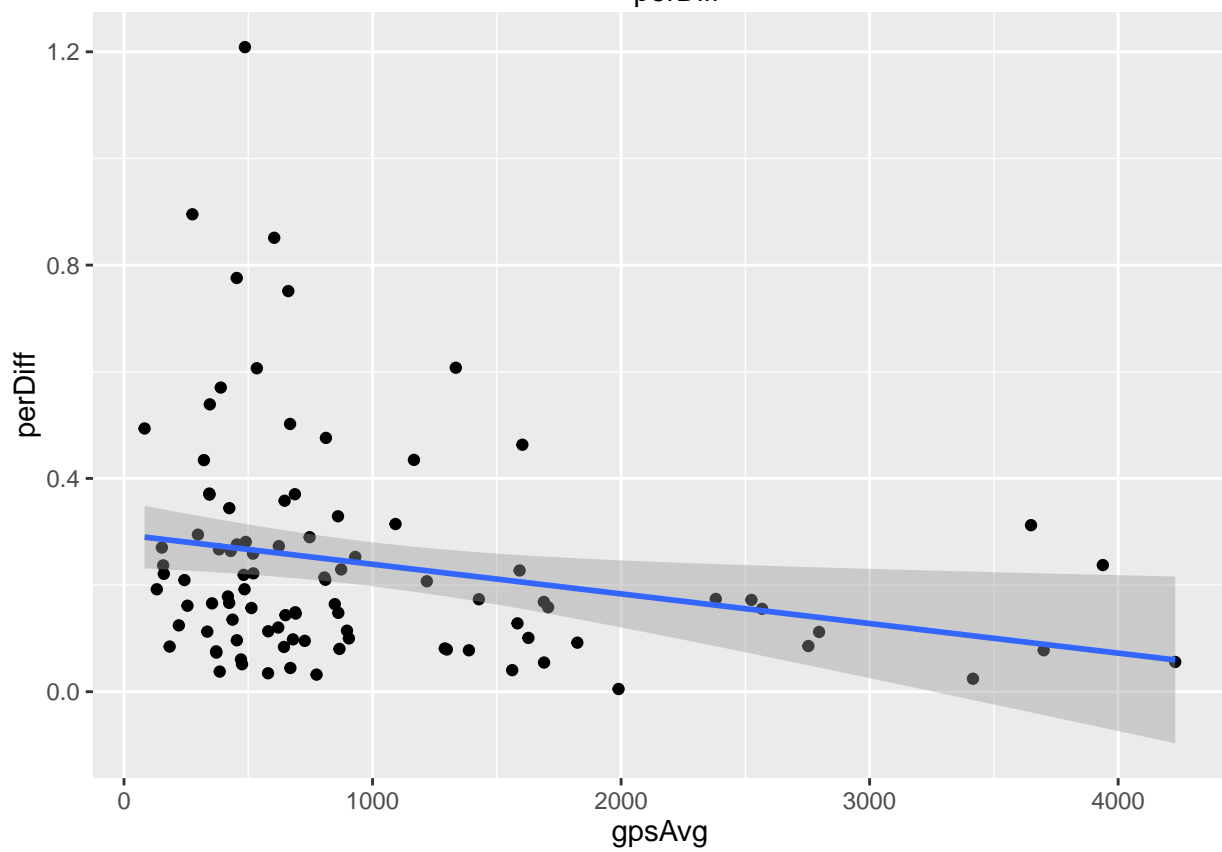
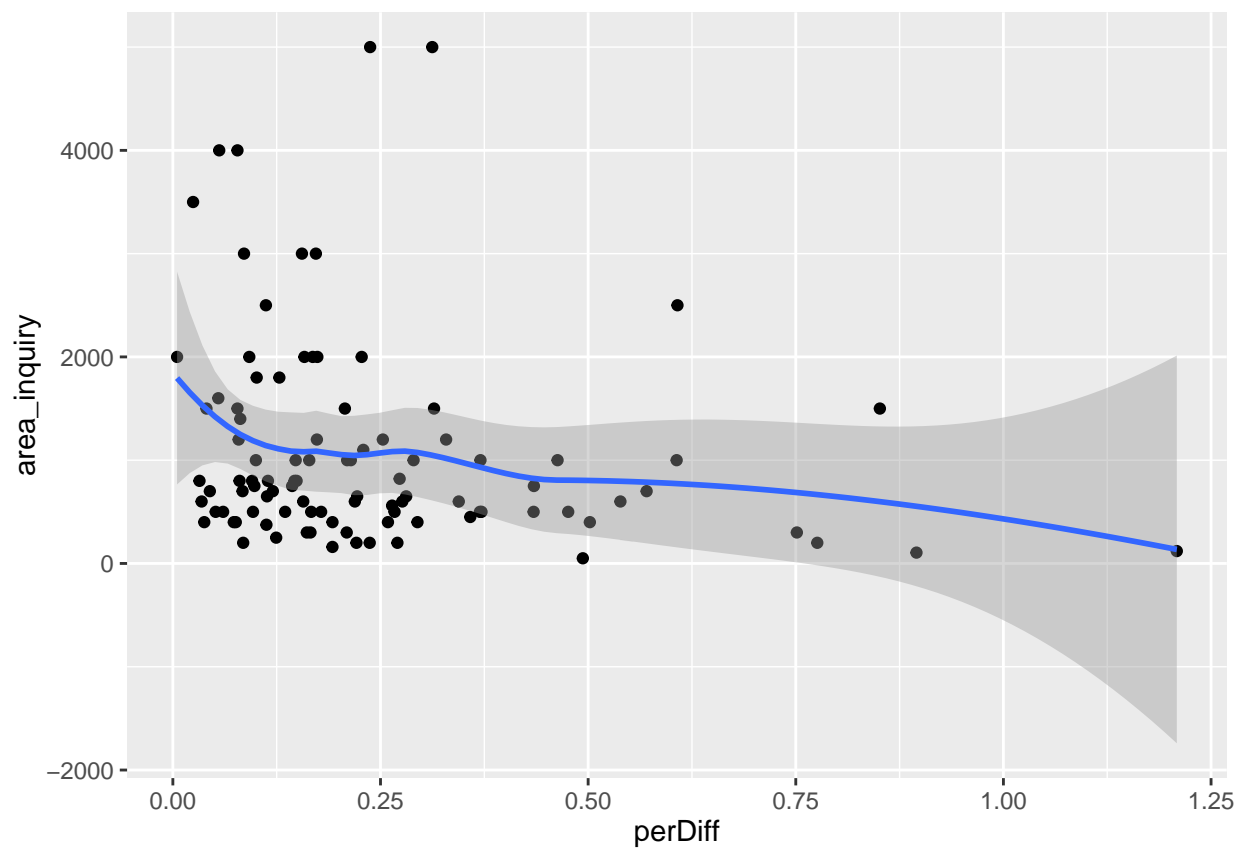


## Compare average of gps measures to farmer inquiry



Difference analysis





Create graph w/ avgGps and inquiry, run regression line w/ intercept of zero. Then test slope if line is significantly different from 1.