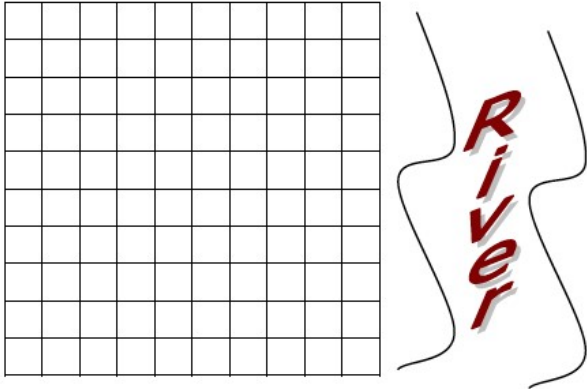




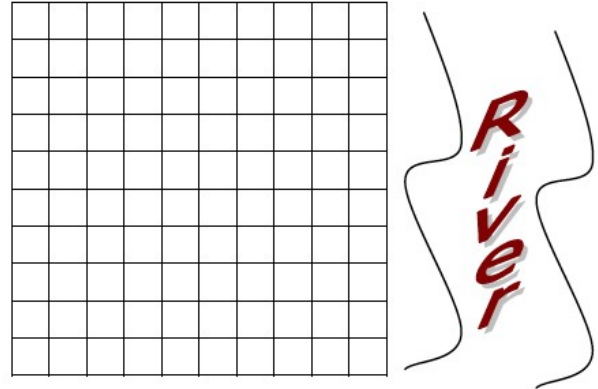
### C. Method Number Three: Stratified Sample

Consider the field as grouped in vertical columns (called strata). Using your calculator or a random number table, randomly choose one plot from each **vertical** column and mark these plots on the grid.



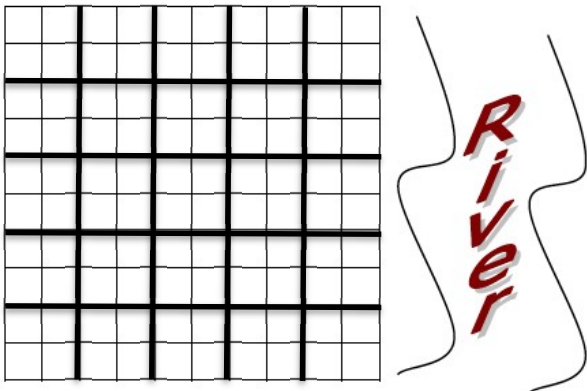
### D. Method Number Four: Stratified Sample

Consider the field as grouped in horizontal rows (also called strata). Using your calculator or a random number table, randomly choose one plot from each **horizontal** row and mark these plots on the grid.



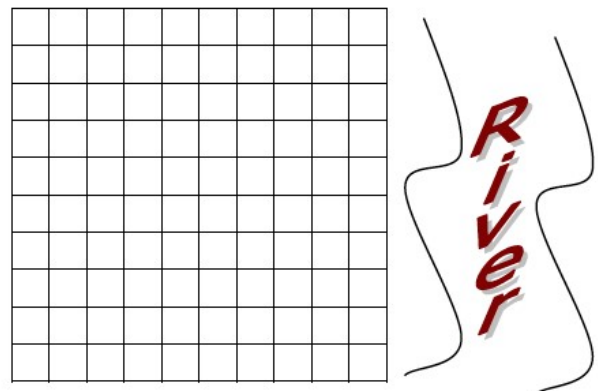
### E. Method Number Four: Cluster

Consider the field as grouped in clusters of 4 (shaped like a square). Using your calculator or a random number table, randomly choose three clusters from the grid.



### F. Method Number Four: Systematic

Use your calculator or random digit table to find a “starting point” on the grid below. From that create a system to find every nth plot. Usually a systematic sample will take every 3<sup>rd</sup> – 15<sup>th</sup> number. You decide what that number will be. Once you know that number, you count every nth box.



OK, the crop is ready. Below is a grid with the yield per plot. Estimate the average yield per plot based on each of the four sampling techniques.

6	17	20	38	47	55	69	76	82	97
7	14	23	34	43	56	63	75	81	92
2	14	28	30	50	50	62	80	85	96
9	15	27	34	43	51	65	72	88	91
4	15	28	32	44	50	64	76	82	97
5	16	27	31	48	59	69	72	86	99
5	18	28	34	50	60	62	75	90	90
8	15	20	38	40	54	62	77	88	93
7	17	29	39	44	53	61	77	80	90
7	19	22	33	49	53	67	76	86	97



Sampling Method	Total plot for the sample taken	Mean yield per plot	Estimate of total yield
Convenience Sample			
Simple Random Sample			
Vertical Strata			
Horizontal Strata			
Cluster Sample			
Systematic Sample			

**Observations:**

- 1) You have looked at four different methods of choosing plots. Is there a reason, other than convenience, to choose one method over another?
  
- 2) How did your estimates vary according to the different sampling methods you used?
  
- 3) Compare your results to someone else in the class. Were your results similar?
  
- 4) Which sampling method should you use? Why do you think this method is best?

## Part II:

The farmer was very impressed with the results of your study and seeks to improve the yield of that part of the field the following year. Believing that irrigation is the answer, a new system was installed. The following year's yield was:

79	81	95	69	65	59	88	65	66	91
80	75	88	80	82	66	76	99	62	61
97	50	92	92	91	84	75	85	63	89
99	71	55	75	65	66	66	86	96	50
57	95	51	79	98	71	70	86	89	76
57	53	90	71	50	76	56	91	85	64
69	95	98	90	93	97	79	95	73	90
58	99	75	51	67	81	55	63	89	74
98	62	73	54	50	76	91	50	90	55
91	59	69	59	71	72	85	85	86	97



Using the same samples as the previous year, find the total yield and mean yield per plot for each type of sample. Complete the table below.

Sampling Method	Total plot for the sample taken	Mean yield per plot	Estimate of total yield
Convenience Sample			
Simple Random Sample			
Vertical Strata			
Horizontal Strata			
Cluster Sample			
Systematic Sample			

### Observations:

- 1) Based on the results of both activities, under what conditions is it more useful to use stratified sampling?
- 2) Based on the results of both activities, under what conditions is it more useful to use a simple random sample?