Simulation study

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## Allocation of Trays to Runs and Tags

### Allocation of Trays to Tags

There are 3 ways to allocate two Trays to four Tags These allocations are presented as below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Tag114 | Tag115 | Tag116 | Tag117 |
| 1 | 1 | 2 | 2 | 1 |
| 2 | 1 | 2 | 1 | 2 |
| 3 | 1 | 1 | 2 | 2 |

### Allocation of Trays to Runs

There are 10 ways to allocate two Trays to six Runs. These allocations are presented as below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Run1 | Run2 | Run3 | Run4 | Run5 | Run6 |
| 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 2 | 1 | 2 | 2 | 1 | 2 | 1 |
| 3 | 1 | 2 | 1 | 2 | 2 | 1 |
| 4 | 1 | 1 | 2 | 2 | 2 | 1 |
| 5 | 1 | 2 | 2 | 1 | 1 | 2 |
| 6 | 1 | 2 | 1 | 2 | 1 | 2 |
| 7 | 1 | 1 | 2 | 2 | 1 | 2 |
| 8 | 1 | 2 | 1 | 1 | 2 | 2 |
| 9 | 1 | 1 | 2 | 1 | 2 | 2 |
| 10 | 1 | 1 | 1 | 2 | 2 | 2 |

Thus, there are 13 ways in total to allocate two Trays to six runs and four tags.

## Allocation of three Treatments to 12 plots within each Tray

There are 34650 ways to allocate three Treatments to 12 plots within a Tray. The first 10 and last 10 allocations are presented as below:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Plt1 | Plt2 | Plt3 | Plt4 | Plt5 | Plt6 | Plt7 | Plt8 | Plt9 | Plt10 | Plt11 | Plt12 |
| 1 | a | a | a | a | b | b | b | b | c | c | c | c |
| 2 | a | a | a | a | b | b | b | c | b | c | c | c |
| 3 | a | a | a | a | b | b | b | c | c | b | c | c |
| 4 | a | a | a | a | b | b | b | c | c | c | b | c |
| 5 | a | a | a | a | b | b | b | c | c | c | c | b |
| 6 | a | a | a | a | b | b | c | b | b | c | c | c |
| 7 | a | a | a | a | b | b | c | b | c | b | c | c |
| 8 | a | a | a | a | b | b | c | b | c | c | b | c |
| 9 | a | a | a | a | b | b | c | b | c | c | c | b |
| 10 | a | a | a | a | b | b | c | c | b | b | c | c |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Plt1 | Plt2 | Plt3 | Plt4 | Plt5 | Plt6 | Plt7 | Plt8 | Plt9 | Plt10 | Plt11 | Plt12 |
| 34641 | c | c | c | c | b | b | a | a | b | b | a | a |
| 34642 | c | c | c | c | b | b | a | b | a | a | a | b |
| 34643 | c | c | c | c | b | b | a | b | a | a | b | a |
| 34644 | c | c | c | c | b | b | a | b | a | b | a | a |
| 34645 | c | c | c | c | b | b | a | b | b | a | a | a |
| 34646 | c | c | c | c | b | b | b | a | a | a | a | b |
| 34647 | c | c | c | c | b | b | b | a | a | a | b | a |
| 34648 | c | c | c | c | b | b | b | a | a | b | a | a |
| 34649 | c | c | c | c | b | b | b | a | b | a | a | a |
| 34650 | c | c | c | c | b | b | b | b | a | a | a | a |

## Allocation of two Plants to each Treatment, i.e. expermetnal units

There are 3 ways to allocate two plants to the four experimetnal units of each treatment group. These allocations are presented as below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Unit1 | Unit2 | Unit3 | Unit4 |
| 1 | A | D | D | A |
| 2 | A | D | A | D |
| 3 | A | A | D | D |

However, there is then 6.002939210^{8} way to allocate 34650 different allocations to two trays. This is still too many.