

Toronto Gardeners Survey Analysis: COVID-19

Shirin Arghandeh

2020-06-08

Cross-Tabulations

Cross-tabulation of types of garden on duration gardeners have grown food:

growing_duration	allot_garden	balcony_garden	comm_garden	else_garden	inside_garden	landlord_garden	other_garden	yard_garden
>10 yrs	4	9	10	7	16	4	7	47
1-5 yrs	0	7	7	0	3	5	2	11
6-10 yrs	5	3	4	5	4	2	4	20
Total	9	19	21	12	23	11	13	78

Note: co-op garden has been integrated into other garden.

Testing for significance, we use Fisher's Exact Test to test the independence of variables garden type and Growing Duration. Our null hypothesis is that type of garden a gardener has is independent to the number of years a gardener has grown food.

```
fisher.test(td_cross, simulate.p.value = TRUE, B=1e7)
```

```
## Warning: Setting row names on a tibble is deprecated.
```

```
##
## Fisher's Exact Test for Count Data with simulated p-value (based
## on 1e+07 replicates)
##
## data: td_cross
## p-value = 0.3867
## alternative hypothesis: two.sided
```

Receiving error when workspace is set to $2e^7$ so tried simulating p-values based on number of Monte Carlo tests but this requires a very large number of simulations so p-value may not be accurate. It could be said that if $p < 1e^{-7}$ the p-value is extremely small so we can reject the null hypothesis.

Cross tabulation of types of gardens on number of plants gardeners have grown:

num_plants	allot_garden	balcony_garden	comm_garden	else_garden	inside_garden	landlord_garden	other_garden	yard_garden
>10 plants	3	7	9	3	7	4	1	24
>20 plants	5	3	4	3	6	3	6	13
>30 plants	1	1	1	3	5	1	3	9
1-5 plants	0	7	4	2	3	2	3	12
6-10 plants	0	1	3	1	2	1	0	20
Total	9	19	21	12	23	11	13	78

Fisher's Exact Test for testing independence between garden type and number of plants grown.

```
fisher.test(tp_cross, simulate.p.value=TRUE, B = 1e7)
```

```
## Warning: Setting row names on a tibble is deprecated.
```

```
##
## Fisher's Exact Test for Count Data with simulated p-value (based
## on 1e+07 replicates)
##
## data: tp_cross
## p-value = 0.4832
## alternative hypothesis: two.sided
```

Cross-tabulation of garden type versus where they get seeds.