The structure of all periodic matrices used in the two different scenarios are listed below. All numbers are female-only.

#### Published literature data

##### Pre-planting tillage induced vertical redistribution of seeds

The only non-zeroes section of the pre-planting tillage induced vertical redistribution of seeds is . ’s were resized from the raw data of Seed Chaser [@spokasSeedChaserVerticalSoil2007], a simulation program that estimate vertical seed movement after tillage: the proportion of seeds staying at its original soil stratum, and , or move to another stratum, and . The original matrices in @spokasSeedChaserVerticalSoil2007 were resized to 2 x 2 by summing over all the elements within each of the four sections, i.e., top left 2 x 2, bottom left 18 x 2, top right 2 x 18, and 18x18, and divide each of the i x 2 summations by the summation of the 20 x 2 left section, and each of the i x 18 summations by the summation of the 20 x 2 right section.

No-till is represented by an identical matrix, , after @cousensModelEffectsCultivation1990. A field cultivator was applied before planting corn (C2, C3, and C4), soybean (S2, S3, and S4), and oat (O3 and O4). No tillage was applied before alfalfa (A4) because alfalfa that was intercropped with oat in the 4-year rotation (O4) was kept overwinter and grown as a sole crop in the following year.

##### In-season survival of seeds and seedlings

The matrix is comprised of seed survival rates at the and plant survival rates at the sections, respectively.

The section’s diagonal ( and ) were filled with survival rates adapted from equations and [Figures 1 and 3, @sosnoskieGlyphosateResistanceDoes2013] for the top and bottom layers. The values of x, denoted as , the burial length since emergence until new seed production, were assigned at 6 for all crop environments.

The empirically measured data for seedling survival was deemed unrealistically (Appendix) low as compared to the literature, so @nordbyInfluenceCornCommon2004’s results were used for corn and @hartzlerEffectCommonWaterhemp2004’s results were used for soybean crop environments. The seedling survival rates by cohort () were assigned such that the earlier cohorts had lower survival rate in the oat crop environment; and those in the alfalfa crop environment were evenly low in all cohorts. These estimated numbers were based on a suggestion that cool-season crop environments can inhibit warm-season weed species growth [@nguyenWeedCommunityComposition2022 and citations given there].

##### Plant fecundity

The plant fecundity matrix () had the block’s diagonal filled with 1’s and the first row of the filled with . The 1’s in the block’s diagonal are placeholders to carry the product from the previous matrices over.

Two scenarios of plant fecundity were used. In scenario 1, plant fecundity () in each crop identity crossed with corn weed management was estimated from plant aboveground mass using eighteen equations from @nguyenImpactCroppingSystem2022. In scenario 2, the plants were partitioned into six size-based bins and their fecundity was summarized as and filled in their relevant positions in the matrix by partitioning. Both practices in scenarios 1 and 2 were based on the assumption that plant size and fecundity decreased as emergence delayed [@hartzlerEffectCommonWaterhemp2004; @nordbyInfluenceCornCommon2004].

##### Post-harvest tillage induced vertical redistribution of seeds post-harvest tillage

The compilation of was the similar to that of . Chisel plowing was applied after corn was harvested in the C2, C3, and C4 treatments, no-till was applied after harvests in the S2, S3, S4, and O4 treatments, and moldboard was applied at the end of the O3 and A4 phases.

##### Overwinter survival

The compilation of matrix was similar to that of , using equations and [Figures 1 and 3, @sosnoskieGlyphosateResistanceDoes2013]. was calculated with different values of x, denoted as the burial length after post-harvest tillage application until emergence initiation, were assigned at 6 for all crop environments (Table ??), equivalent to in the summer seed survival in matrix .

#### Empirically measured data

##### Seedling recruitment

The emergence proportions calculated from step 5 here are positioned on the first column of block in matrix . represents the non-emerging seeds proportion.

The proportion of seedling emergence from the top 0-2 cm soil seedbank stratum in each crop identity crossed with corn weed management was calculated with the following steps:

1 - Estimate the 0-2 cm and 2-20 cm seedbank densities with the soil seedbank samples collected before post-harvest tillage. A seed column at a particular sub-annual period is comprised of the 0-2 cm and 2-20 cm soil stratum seed densities, .

From steps 2 through 4, the seed column in sub-period h, , was transitioned from one period to the next with the general matrix multiplication of by @caswellMatrixPopulationModels2001.

2 - Estimate post-harvest tillage induced seed vertical redistribution with resized Seed Chaser [@spokasSeedChaserVerticalSoil2007] chisel and moldboard plowing matrices, as detailed in the *Post-harvest tillage induced seed vertical movement*, to yield

3 - Adapt overwinter survival rates as previously explain in he *Overwinter survival section* and apply it on to yield . Corn weed management did not affect waterhemp’s first cohort emergence in the same crop environment (Appendix), so the same value of was used for the same crop identity.

4 - Estimate pre-planting tillage induced seed vertical redistribution with resized Seed Chaser [@spokasSeedChaserVerticalSoil2007] field cultivator matrix, similar to step 2 to yield .

5 - Divide the seedling density in each cohort, , by , the top soil stratum seed density to yield .

#### 0.0.0.1 Scenarios 1 (2019 fecundity rates) and 2 (2018 fecundity rates) matrices {-} The matrices are listed by chronological orders. The abbreviate row and column names are:

* s\_t: seed at the top stratum (0 - 2 cm),
* s\_b: seed at the bottom stratum (2 - 20 cm),
* p\_co\_1 through p\_co\_6: plant cohort 1 through 6.

##### Pre-planting tillage

The same pre-planting tillage regimes were applied in 2018 and 2019.

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.15 0 0 0 0 0 0  
## s\_b 0.41 0.85 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0

##### Emergence

The same emergence rates were used in 2018 and 2019. Some zero values were due to rounding.

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.78263 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.04281 0 0 0 0 0 0 0  
## p\_co\_2 0.09628 0 0 0 0 0 0 0  
## p\_co\_3 0.00082 0 0 0 0 0 0 0  
## p\_co\_4 0.07297 0 0 0 0 0 0 0  
## p\_co\_5 0.00352 0 0 0 0 0 0 0  
## p\_co\_6 0.00097 0 0 0 0 0 0 0  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.80527 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.03825 0 0 0 0 0 0 0  
## p\_co\_2 0.08535 0 0 0 0 0 0 0  
## p\_co\_3 0.00127 0 0 0 0 0 0 0  
## p\_co\_4 0.06481 0 0 0 0 0 0 0  
## p\_co\_5 0.00365 0 0 0 0 0 0 0  
## p\_co\_6 0.00140 0 0 0 0 0 0 0  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99879 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00010 0 0 0 0 0 0 0  
## p\_co\_2 0.00110 0 0 0 0 0 0 0  
## p\_co\_3 0.00000 0 0 0 0 0 0 0  
## p\_co\_4 0.00000 0 0 0 0 0 0 0  
## p\_co\_5 0.00000 0 0 0 0 0 0 0  
## p\_co\_6 0.00000 0 0 0 0 0 0 0  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99453 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00074 0 0 0 0 0 0 0  
## p\_co\_2 0.00373 0 0 0 0 0 0 0  
## p\_co\_3 0.00035 0 0 0 0 0 0 0  
## p\_co\_4 0.00025 0 0 0 0 0 0 0  
## p\_co\_5 0.00020 0 0 0 0 0 0 0  
## p\_co\_6 0.00019 0 0 0 0 0 0 0  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99635 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00036 0 0 0 0 0 0 0  
## p\_co\_2 0.00322 0 0 0 0 0 0 0  
## p\_co\_3 0.00000 0 0 0 0 0 0 0  
## p\_co\_4 0.00006 0 0 0 0 0 0 0  
## p\_co\_5 0.00000 0 0 0 0 0 0 0  
## p\_co\_6 0.00000 0 0 0 0 0 0 0  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.98511 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00218 0 0 0 0 0 0 0  
## p\_co\_2 0.00948 0 0 0 0 0 0 0  
## p\_co\_3 0.00090 0 0 0 0 0 0 0  
## p\_co\_4 0.00141 0 0 0 0 0 0 0  
## p\_co\_5 0.00046 0 0 0 0 0 0 0  
## p\_co\_6 0.00046 0 0 0 0 0 0 0  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.97065 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00282 0 0 0 0 0 0 0  
## p\_co\_2 0.02641 0 0 0 0 0 0 0  
## p\_co\_3 0.00003 0 0 0 0 0 0 0  
## p\_co\_4 0.00003 0 0 0 0 0 0 0  
## p\_co\_5 0.00003 0 0 0 0 0 0 0  
## p\_co\_6 0.00003 0 0 0 0 0 0 0  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.90016 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.01498 0 0 0 0 0 0 0  
## p\_co\_2 0.06925 0 0 0 0 0 0 0  
## p\_co\_3 0.00512 0 0 0 0 0 0 0  
## p\_co\_4 0.00399 0 0 0 0 0 0 0  
## p\_co\_5 0.00331 0 0 0 0 0 0 0  
## p\_co\_6 0.00320 0 0 0 0 0 0 0  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99845 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00032 0 0 0 0 0 0 0  
## p\_co\_2 0.00059 0 0 0 0 0 0 0  
## p\_co\_3 0.00038 0 0 0 0 0 0 0  
## p\_co\_4 0.00024 0 0 0 0 0 0 0  
## p\_co\_5 0.00002 0 0 0 0 0 0 0  
## p\_co\_6 0.00000 0 0 0 0 0 0 0  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99831 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00035 0 0 0 0 0 0 0  
## p\_co\_2 0.00061 0 0 0 0 0 0 0  
## p\_co\_3 0.00040 0 0 0 0 0 0 0  
## p\_co\_4 0.00027 0 0 0 0 0 0 0  
## p\_co\_5 0.00005 0 0 0 0 0 0 0  
## p\_co\_6 0.00002 0 0 0 0 0 0 0  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99953 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00006 0 0 0 0 0 0 0  
## p\_co\_2 0.00018 0 0 0 0 0 0 0  
## p\_co\_3 0.00012 0 0 0 0 0 0 0  
## p\_co\_4 0.00007 0 0 0 0 0 0 0  
## p\_co\_5 0.00002 0 0 0 0 0 0 0  
## p\_co\_6 0.00000 0 0 0 0 0 0 0  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99952 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00007 0 0 0 0 0 0 0  
## p\_co\_2 0.00017 0 0 0 0 0 0 0  
## p\_co\_3 0.00012 0 0 0 0 0 0 0  
## p\_co\_4 0.00007 0 0 0 0 0 0 0  
## p\_co\_5 0.00004 0 0 0 0 0 0 0  
## p\_co\_6 0.00002 0 0 0 0 0 0 0  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.96816 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.02297 0 0 0 0 0 0 0  
## p\_co\_2 0.00581 0 0 0 0 0 0 0  
## p\_co\_3 0.00165 0 0 0 0 0 0 0  
## p\_co\_4 0.00062 0 0 0 0 0 0 0  
## p\_co\_5 0.00034 0 0 0 0 0 0 0  
## p\_co\_6 0.00044 0 0 0 0 0 0 0  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.98761 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00958 0 0 0 0 0 0 0  
## p\_co\_2 0.00226 0 0 0 0 0 0 0  
## p\_co\_3 0.00049 0 0 0 0 0 0 0  
## p\_co\_4 0.00005 0 0 0 0 0 0 0  
## p\_co\_5 0.00001 0 0 0 0 0 0 0  
## p\_co\_6 0.00001 0 0 0 0 0 0 0  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.98131 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.01459 0 0 0 0 0 0 0  
## p\_co\_2 0.00291 0 0 0 0 0 0 0  
## p\_co\_3 0.00072 0 0 0 0 0 0 0  
## p\_co\_4 0.00006 0 0 0 0 0 0 0  
## p\_co\_5 0.00013 0 0 0 0 0 0 0  
## p\_co\_6 0.00028 0 0 0 0 0 0 0  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.98830 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00927 0 0 0 0 0 0 0  
## p\_co\_2 0.00182 0 0 0 0 0 0 0  
## p\_co\_3 0.00042 0 0 0 0 0 0 0  
## p\_co\_4 0.00000 0 0 0 0 0 0 0  
## p\_co\_5 0.00004 0 0 0 0 0 0 0  
## p\_co\_6 0.00014 0 0 0 0 0 0 0  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99948 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00040 0 0 0 0 0 0 0  
## p\_co\_2 0.00008 0 0 0 0 0 0 0  
## p\_co\_3 0.00000 0 0 0 0 0 0 0  
## p\_co\_4 0.00001 0 0 0 0 0 0 0  
## p\_co\_5 0.00001 0 0 0 0 0 0 0  
## p\_co\_6 0.00001 0 0 0 0 0 0 0  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.99946 0 0 0 0 0 0 0  
## s\_b 0.00000 1 0 0 0 0 0 0  
## p\_co\_1 0.00032 0 0 0 0 0 0 0  
## p\_co\_2 0.00010 0 0 0 0 0 0 0  
## p\_co\_3 0.00005 0 0 0 0 0 0 0  
## p\_co\_4 0.00002 0 0 0 0 0 0 0  
## p\_co\_5 0.00002 0 0 0 0 0 0 0  
## p\_co\_6 0.00003 0 0 0 0 0 0 0

##### Summer survival

The same summer survival rates were used in 2018 and 2019. Some zero values were due to rounding.

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.0 0.0 0.0 0.0 0.0 0.0  
## s\_b 0.00 0.74 0.0 0.0 0.0 0.0 0.0 0.0  
## p\_co\_1 0.00 0.00 0.1 0.0 0.0 0.0 0.0 0.0  
## p\_co\_2 0.00 0.00 0.0 0.1 0.0 0.0 0.0 0.0  
## p\_co\_3 0.00 0.00 0.0 0.0 0.1 0.0 0.0 0.0  
## p\_co\_4 0.00 0.00 0.0 0.0 0.0 0.1 0.0 0.0  
## p\_co\_5 0.00 0.00 0.0 0.0 0.0 0.0 0.5 0.0  
## p\_co\_6 0.00 0.00 0.0 0.0 0.0 0.0 0.0 0.5  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.0 0.0 0.0 0.0 0.0 0.0  
## s\_b 0.00 0.74 0.0 0.0 0.0 0.0 0.0 0.0  
## p\_co\_1 0.00 0.00 0.1 0.0 0.0 0.0 0.0 0.0  
## p\_co\_2 0.00 0.00 0.0 0.1 0.0 0.0 0.0 0.0  
## p\_co\_3 0.00 0.00 0.0 0.0 0.1 0.0 0.0 0.0  
## p\_co\_4 0.00 0.00 0.0 0.0 0.0 0.1 0.0 0.0  
## p\_co\_5 0.00 0.00 0.0 0.0 0.0 0.0 0.5 0.0  
## p\_co\_6 0.00 0.00 0.0 0.0 0.0 0.0 0.0 0.5  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.48 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.48 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.48 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.48 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.48 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.48 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.48 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.48 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.48 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.48 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.48 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.48 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.0 0.0 0.0 0.0 0.0 0.0  
## s\_b 0.00 0.74 0.0 0.0 0.0 0.0 0.0 0.0  
## p\_co\_1 0.00 0.00 0.1 0.0 0.0 0.0 0.0 0.0  
## p\_co\_2 0.00 0.00 0.0 0.1 0.0 0.0 0.0 0.0  
## p\_co\_3 0.00 0.00 0.0 0.0 0.5 0.0 0.0 0.0  
## p\_co\_4 0.00 0.00 0.0 0.0 0.0 0.5 0.0 0.0  
## p\_co\_5 0.00 0.00 0.0 0.0 0.0 0.0 0.9 0.0  
## p\_co\_6 0.00 0.00 0.0 0.0 0.0 0.0 0.0 0.9  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.0 0.0 0.0 0.0 0.0 0.0  
## s\_b 0.00 0.74 0.0 0.0 0.0 0.0 0.0 0.0  
## p\_co\_1 0.00 0.00 0.1 0.0 0.0 0.0 0.0 0.0  
## p\_co\_2 0.00 0.00 0.0 0.1 0.0 0.0 0.0 0.0  
## p\_co\_3 0.00 0.00 0.0 0.0 0.5 0.0 0.0 0.0  
## p\_co\_4 0.00 0.00 0.0 0.0 0.0 0.5 0.0 0.0  
## p\_co\_5 0.00 0.00 0.0 0.0 0.0 0.0 0.9 0.0  
## p\_co\_6 0.00 0.00 0.0 0.0 0.0 0.0 0.0 0.9  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.0 0.0 0.0 0.0 0.0 0.0  
## s\_b 0.00 0.74 0.0 0.0 0.0 0.0 0.0 0.0  
## p\_co\_1 0.00 0.00 0.1 0.0 0.0 0.0 0.0 0.0  
## p\_co\_2 0.00 0.00 0.0 0.1 0.0 0.0 0.0 0.0  
## p\_co\_3 0.00 0.00 0.0 0.0 0.5 0.0 0.0 0.0  
## p\_co\_4 0.00 0.00 0.0 0.0 0.0 0.5 0.0 0.0  
## p\_co\_5 0.00 0.00 0.0 0.0 0.0 0.0 0.9 0.0  
## p\_co\_6 0.00 0.00 0.0 0.0 0.0 0.0 0.0 0.9  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.0 0.0 0.0 0.0 0.0 0.0  
## s\_b 0.00 0.74 0.0 0.0 0.0 0.0 0.0 0.0  
## p\_co\_1 0.00 0.00 0.1 0.0 0.0 0.0 0.0 0.0  
## p\_co\_2 0.00 0.00 0.0 0.1 0.0 0.0 0.0 0.0  
## p\_co\_3 0.00 0.00 0.0 0.0 0.5 0.0 0.0 0.0  
## p\_co\_4 0.00 0.00 0.0 0.0 0.0 0.5 0.0 0.0  
## p\_co\_5 0.00 0.00 0.0 0.0 0.0 0.0 0.9 0.0  
## p\_co\_6 0.00 0.00 0.0 0.0 0.0 0.0 0.0 0.9  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.84 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.26 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.84 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.26 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.84 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.26 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.84 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.26 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.84 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.26 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0.00 0.00 0.00 0.00 0.00 0.00  
## s\_b 0.00 0.74 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0.00 0.00 0.84 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0.00 0.00 0.00 0.84 0.00 0.00 0.00 0.00  
## p\_co\_3 0.00 0.00 0.00 0.00 0.26 0.00 0.00 0.00  
## p\_co\_4 0.00 0.00 0.00 0.00 0.00 0.26 0.00 0.00  
## p\_co\_5 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00  
## p\_co\_6 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01

##### Individual plant fecundity

Scenario 1: 2019

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 11.8 5.36 3.4 2.13 1.3 0.64  
## s\_b 0 1 0.0 0.00 0.0 0.00 0.0 0.00  
## p\_co\_1 0 0 0.0 0.00 0.0 0.00 0.0 0.00  
## p\_co\_2 0 0 0.0 0.00 0.0 0.00 0.0 0.00  
## p\_co\_3 0 0 0.0 0.00 0.0 0.00 0.0 0.00  
## p\_co\_4 0 0 0.0 0.00 0.0 0.00 0.0 0.00  
## p\_co\_5 0 0 0.0 0.00 0.0 0.00 0.0 0.00  
## p\_co\_6 0 0 0.0 0.00 0.0 0.00 0.0 0.00  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 6.22 3.21 2.26 1.65 1.3 0.88  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 3518.59 615.17 231.49 99.53 29.99 7.69  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 242.93 22.54 12.03 6.81 3.9 2  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.0 0  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.0 0  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.0 0  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.0 0  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.0 0  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.0 0  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.0 0  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 685.16 120.67 37.61 19.81 7.85 2.39  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 105.88 48.51 31.41 24.87 20.11 15.01  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 980.71 643.78 70.33 48.66 6.55 3.09  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 1431.88 969.28 227.07 123.04 38.59 0.98  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 385.14 110.44 57.49 29.61 14.7 3.94  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.0 0.00  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 334.33 202.25 147.01 116.24 86.41 52.36  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 606.39 163.51 81.36 47.65 23.06 8.76  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 963.95 223.23 120.21 69.43 29.84 13.56  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 1.32 0 0 0 0 0  
## s\_b 0 1 0.00 0 0 0 0 0  
## p\_co\_1 0 0 0.00 0 0 0 0 0  
## p\_co\_2 0 0 0.00 0 0 0 0 0  
## p\_co\_3 0 0 0.00 0 0 0 0 0  
## p\_co\_4 0 0 0.00 0 0 0 0 0  
## p\_co\_5 0 0 0.00 0 0 0 0 0  
## p\_co\_6 0 0 0.00 0 0 0 0 0  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 6.99 0 0 0 0 0  
## s\_b 0 1 0.00 0 0 0 0 0  
## p\_co\_1 0 0 0.00 0 0 0 0 0  
## p\_co\_2 0 0 0.00 0 0 0 0 0  
## p\_co\_3 0 0 0.00 0 0 0 0 0  
## p\_co\_4 0 0 0.00 0 0 0 0 0  
## p\_co\_5 0 0 0.00 0 0 0 0 0  
## p\_co\_6 0 0 0.00 0 0 0 0 0  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 8.5 0 0 0 0 0  
## s\_b 0 1 0.0 0 0 0 0 0  
## p\_co\_1 0 0 0.0 0 0 0 0 0  
## p\_co\_2 0 0 0.0 0 0 0 0 0  
## p\_co\_3 0 0 0.0 0 0 0 0 0  
## p\_co\_4 0 0 0.0 0 0 0 0 0  
## p\_co\_5 0 0 0.0 0 0 0 0 0  
## p\_co\_6 0 0 0.0 0 0 0 0 0  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0.06 0 0 0 0 0  
## s\_b 0 1 0.00 0 0 0 0 0  
## p\_co\_1 0 0 0.00 0 0 0 0 0  
## p\_co\_2 0 0 0.00 0 0 0 0 0  
## p\_co\_3 0 0 0.00 0 0 0 0 0  
## p\_co\_4 0 0 0.00 0 0 0 0 0  
## p\_co\_5 0 0 0.00 0 0 0 0 0  
## p\_co\_6 0 0 0.00 0 0 0 0 0  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 35.45 0 0 0 0 0  
## s\_b 0 1 0.00 0 0 0 0 0  
## p\_co\_1 0 0 0.00 0 0 0 0 0  
## p\_co\_2 0 0 0.00 0 0 0 0 0  
## p\_co\_3 0 0 0.00 0 0 0 0 0  
## p\_co\_4 0 0 0.00 0 0 0 0 0  
## p\_co\_5 0 0 0.00 0 0 0 0 0  
## p\_co\_6 0 0 0.00 0 0 0 0 0  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 30.96 0 0 0 0 0  
## s\_b 0 1 0.00 0 0 0 0 0  
## p\_co\_1 0 0 0.00 0 0 0 0 0  
## p\_co\_2 0 0 0.00 0 0 0 0 0  
## p\_co\_3 0 0 0.00 0 0 0 0 0  
## p\_co\_4 0 0 0.00 0 0 0 0 0  
## p\_co\_5 0 0 0.00 0 0 0 0 0  
## p\_co\_6 0 0 0.00 0 0 0 0 0

Scenario 2: 2018

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 460.33 14.67 1 13.25 1.25 4.25  
## s\_b 0 1 0.00 0.00 0 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0 0.00 0.00 0.00  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 10.67 8.25 9.25 2.5 0.5 1.25  
## s\_b 0 1 0.00 0.00 0.00 0.0 0.0 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.0 0.0 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.0 0.0 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.0 0.0 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.0 0.0 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.0 0.0 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.0 0.0 0.00  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 36077.33 15592.33 6958.8 6298.6 2192.13 272  
## s\_b 0 1 0.00 0.00 0.0 0.0 0.00 0  
## p\_co\_1 0 0 0.00 0.00 0.0 0.0 0.00 0  
## p\_co\_2 0 0 0.00 0.00 0.0 0.0 0.00 0  
## p\_co\_3 0 0 0.00 0.00 0.0 0.0 0.00 0  
## p\_co\_4 0 0 0.00 0.00 0.0 0.0 0.00 0  
## p\_co\_5 0 0 0.00 0.00 0.0 0.0 0.00 0  
## p\_co\_6 0 0 0.00 0.00 0.0 0.0 0.00 0  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 84140.39 3127.22 897.67 506.33 224.17 34.83  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 21662.67 7965.78 3138.78 166.33 271.33 75.25  
## s\_b 0 1 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0.00 0.00 0.00  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 292.33 517.33 207.25 144 35.5 51.25  
## s\_b 0 1 0.00 0.00 0.00 0 0.0 0.00  
## p\_co\_1 0 0 0.00 0.00 0.00 0 0.0 0.00  
## p\_co\_2 0 0 0.00 0.00 0.00 0 0.0 0.00  
## p\_co\_3 0 0 0.00 0.00 0.00 0 0.0 0.00  
## p\_co\_4 0 0 0.00 0.00 0.00 0 0.0 0.00  
## p\_co\_5 0 0 0.00 0.00 0.00 0 0.0 0.00  
## p\_co\_6 0 0 0.00 0.00 0.00 0 0.0 0.00  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 93672.33 7124 18026.33 722 500.67 272.67  
## s\_b 0 1 0.00 0 0.00 0 0.00 0.00  
## p\_co\_1 0 0 0.00 0 0.00 0 0.00 0.00  
## p\_co\_2 0 0 0.00 0 0.00 0 0.00 0.00  
## p\_co\_3 0 0 0.00 0 0.00 0 0.00 0.00  
## p\_co\_4 0 0 0.00 0 0.00 0 0.00 0.00  
## p\_co\_5 0 0 0.00 0 0.00 0 0.00 0.00  
## p\_co\_6 0 0 0.00 0 0.00 0 0.00 0.00  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 6139.56 2349 830.5 164.75 52.25 18.75  
## s\_b 0 1 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0 0.0 0.00 0.00 0.00  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 3353.67 849.25 424.75 218 123.25 79.6  
## s\_b 0 1 0.00 0.00 0.00 0 0.00 0.0  
## p\_co\_1 0 0 0.00 0.00 0.00 0 0.00 0.0  
## p\_co\_2 0 0 0.00 0.00 0.00 0 0.00 0.0  
## p\_co\_3 0 0 0.00 0.00 0.00 0 0.00 0.0  
## p\_co\_4 0 0 0.00 0.00 0.00 0 0.00 0.0  
## p\_co\_5 0 0 0.00 0.00 0.00 0 0.00 0.0  
## p\_co\_6 0 0 0.00 0.00 0.00 0 0.00 0.0  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 658 236.6 307.8 205.6 161.2 105  
## s\_b 0 1 0 0.0 0.0 0.0 0.0 0  
## p\_co\_1 0 0 0 0.0 0.0 0.0 0.0 0  
## p\_co\_2 0 0 0 0.0 0.0 0.0 0.0 0  
## p\_co\_3 0 0 0 0.0 0.0 0.0 0.0 0  
## p\_co\_4 0 0 0 0.0 0.0 0.0 0.0 0  
## p\_co\_5 0 0 0 0.0 0.0 0.0 0.0 0  
## p\_co\_6 0 0 0 0.0 0.0 0.0 0.0 0  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 3696.56 1021 267 227 363 65.25  
## s\_b 0 1 0.00 0 0 0 0 0.00  
## p\_co\_1 0 0 0.00 0 0 0 0 0.00  
## p\_co\_2 0 0 0.00 0 0 0 0 0.00  
## p\_co\_3 0 0 0.00 0 0 0 0 0.00  
## p\_co\_4 0 0 0.00 0 0 0 0 0.00  
## p\_co\_5 0 0 0.00 0 0 0 0 0.00  
## p\_co\_6 0 0 0.00 0 0 0 0 0.00  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 3361.56 2109.44 891.5 722.5 432.25 154.75  
## s\_b 0 1 0.00 0.00 0.0 0.0 0.00 0.00  
## p\_co\_1 0 0 0.00 0.00 0.0 0.0 0.00 0.00  
## p\_co\_2 0 0 0.00 0.00 0.0 0.0 0.00 0.00  
## p\_co\_3 0 0 0.00 0.00 0.0 0.0 0.00 0.00  
## p\_co\_4 0 0 0.00 0.00 0.0 0.0 0.00 0.00  
## p\_co\_5 0 0 0.00 0.00 0.0 0.0 0.00 0.00  
## p\_co\_6 0 0 0.00 0.00 0.0 0.0 0.00 0.00  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 47226.33 36547 24963.5 18982.89 6499.89 1756.22  
## s\_b 0 1 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_1 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_2 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_3 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_4 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_5 0 0 0.00 0 0.0 0.00 0.00 0.00  
## p\_co\_6 0 0 0.00 0 0.0 0.00 0.00 0.00  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 54736.67 78894 55179.33 21709.5 5373.67 1397.67  
## s\_b 0 1 0.00 0 0.00 0.0 0.00 0.00  
## p\_co\_1 0 0 0.00 0 0.00 0.0 0.00 0.00  
## p\_co\_2 0 0 0.00 0 0.00 0.0 0.00 0.00  
## p\_co\_3 0 0 0.00 0 0.00 0.0 0.00 0.00  
## p\_co\_4 0 0 0.00 0 0.00 0.0 0.00 0.00  
## p\_co\_5 0 0 0.00 0 0.00 0.0 0.00 0.00  
## p\_co\_6 0 0 0.00 0 0.00 0.0 0.00 0.00  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 1249255 702469.2 251112.9 62278.67 52229.92 63615.4  
## s\_b 0 1 0 0.0 0.0 0.00 0.00 0.0  
## p\_co\_1 0 0 0 0.0 0.0 0.00 0.00 0.0  
## p\_co\_2 0 0 0 0.0 0.0 0.00 0.00 0.0  
## p\_co\_3 0 0 0 0.0 0.0 0.00 0.00 0.0  
## p\_co\_4 0 0 0 0.0 0.0 0.00 0.00 0.0  
## p\_co\_5 0 0 0 0.0 0.0 0.00 0.00 0.0  
## p\_co\_6 0 0 0 0.0 0.0 0.00 0.00 0.0  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 682268.7 163529.3 111944.6 31397.89 27976.67 5621.89  
## s\_b 0 1 0.0 0.0 0.0 0.00 0.00 0.00  
## p\_co\_1 0 0 0.0 0.0 0.0 0.00 0.00 0.00  
## p\_co\_2 0 0 0.0 0.0 0.0 0.00 0.00 0.00  
## p\_co\_3 0 0 0.0 0.0 0.0 0.00 0.00 0.00  
## p\_co\_4 0 0 0.0 0.0 0.0 0.00 0.00 0.00  
## p\_co\_5 0 0 0.0 0.0 0.0 0.00 0.00 0.00  
## p\_co\_6 0 0 0.0 0.0 0.0 0.00 0.00 0.00  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 287288.8 101940.4 38300.5 7487.5 5401.83 18928.92  
## s\_b 0 1 0.0 0.0 0.0 0.0 0.00 0.00  
## p\_co\_1 0 0 0.0 0.0 0.0 0.0 0.00 0.00  
## p\_co\_2 0 0 0.0 0.0 0.0 0.0 0.00 0.00  
## p\_co\_3 0 0 0.0 0.0 0.0 0.0 0.00 0.00  
## p\_co\_4 0 0 0.0 0.0 0.0 0.0 0.00 0.00  
## p\_co\_5 0 0 0.0 0.0 0.0 0.0 0.00 0.00  
## p\_co\_6 0 0 0.0 0.0 0.0 0.0 0.00 0.00  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 41160 14720 25259 18228 6427.83 4673.56  
## s\_b 0 1 0 0 0 0 0.00 0.00  
## p\_co\_1 0 0 0 0 0 0 0.00 0.00  
## p\_co\_2 0 0 0 0 0 0 0.00 0.00  
## p\_co\_3 0 0 0 0 0 0 0.00 0.00  
## p\_co\_4 0 0 0 0 0 0 0.00 0.00  
## p\_co\_5 0 0 0 0 0 0 0.00 0.00  
## p\_co\_6 0 0 0 0 0 0 0.00 0.00

##### Post-harvest tillage

The same post-harvest tillage regimes were applied in 2018 and 2019.

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.02 0.07 0 0 0 0 0 0  
## s\_b 0.98 0.93 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.02 0.07 0 0 0 0 0 0  
## s\_b 0.98 0.93 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.1 0 0 0 0 0 0  
## s\_b 0.41 0.9 0 0 0 0 0 0  
## p\_co\_1 0.00 0.0 0 0 0 0 0 0  
## p\_co\_2 0.00 0.0 0 0 0 0 0 0  
## p\_co\_3 0.00 0.0 0 0 0 0 0 0  
## p\_co\_4 0.00 0.0 0 0 0 0 0 0  
## p\_co\_5 0.00 0.0 0 0 0 0 0 0  
## p\_co\_6 0.00 0.0 0 0 0 0 0 0  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.1 0 0 0 0 0 0  
## s\_b 0.41 0.9 0 0 0 0 0 0  
## p\_co\_1 0.00 0.0 0 0 0 0 0 0  
## p\_co\_2 0.00 0.0 0 0 0 0 0 0  
## p\_co\_3 0.00 0.0 0 0 0 0 0 0  
## p\_co\_4 0.00 0.0 0 0 0 0 0 0  
## p\_co\_5 0.00 0.0 0 0 0 0 0 0  
## p\_co\_6 0.00 0.0 0 0 0 0 0 0  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.1 0 0 0 0 0 0  
## s\_b 0.41 0.9 0 0 0 0 0 0  
## p\_co\_1 0.00 0.0 0 0 0 0 0 0  
## p\_co\_2 0.00 0.0 0 0 0 0 0 0  
## p\_co\_3 0.00 0.0 0 0 0 0 0 0  
## p\_co\_4 0.00 0.0 0 0 0 0 0 0  
## p\_co\_5 0.00 0.0 0 0 0 0 0 0  
## p\_co\_6 0.00 0.0 0 0 0 0 0 0  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.1 0 0 0 0 0 0  
## s\_b 0.41 0.9 0 0 0 0 0 0  
## p\_co\_1 0.00 0.0 0 0 0 0 0 0  
## p\_co\_2 0.00 0.0 0 0 0 0 0 0  
## p\_co\_3 0.00 0.0 0 0 0 0 0 0  
## p\_co\_4 0.00 0.0 0 0 0 0 0 0  
## p\_co\_5 0.00 0.0 0 0 0 0 0 0  
## p\_co\_6 0.00 0.0 0 0 0 0 0 0  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.1 0 0 0 0 0 0  
## s\_b 0.41 0.9 0 0 0 0 0 0  
## p\_co\_1 0.00 0.0 0 0 0 0 0 0  
## p\_co\_2 0.00 0.0 0 0 0 0 0 0  
## p\_co\_3 0.00 0.0 0 0 0 0 0 0  
## p\_co\_4 0.00 0.0 0 0 0 0 0 0  
## p\_co\_5 0.00 0.0 0 0 0 0 0 0  
## p\_co\_6 0.00 0.0 0 0 0 0 0 0  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.59 0.1 0 0 0 0 0 0  
## s\_b 0.41 0.9 0 0 0 0 0 0  
## p\_co\_1 0.00 0.0 0 0 0 0 0 0  
## p\_co\_2 0.00 0.0 0 0 0 0 0 0  
## p\_co\_3 0.00 0.0 0 0 0 0 0 0  
## p\_co\_4 0.00 0.0 0 0 0 0 0 0  
## p\_co\_5 0.00 0.0 0 0 0 0 0 0  
## p\_co\_6 0.00 0.0 0 0 0 0 0 0  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.02 0.07 0 0 0 0 0 0  
## s\_b 0.98 0.93 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.02 0.07 0 0 0 0 0 0  
## s\_b 0.98 0.93 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 1 0 0 0 0 0 0 0  
## s\_b 0 1 0 0 0 0 0 0  
## p\_co\_1 0 0 0 0 0 0 0 0  
## p\_co\_2 0 0 0 0 0 0 0 0  
## p\_co\_3 0 0 0 0 0 0 0 0  
## p\_co\_4 0 0 0 0 0 0 0 0  
## p\_co\_5 0 0 0 0 0 0 0 0  
## p\_co\_6 0 0 0 0 0 0 0 0

##### Over-winter seed survival

The same overwinter survival rates were used in 2018 and 2019. Some zero values were due to rounding.

## $A4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $A4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $C4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $O4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S2\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S2\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S3\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S3\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S4\_conv  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0  
##   
## $S4\_low  
## s\_t s\_b p\_co\_1 p\_co\_2 p\_co\_3 p\_co\_4 p\_co\_5 p\_co\_6  
## s\_t 0.66 0.00 0 0 0 0 0 0  
## s\_b 0.00 0.74 0 0 0 0 0 0  
## p\_co\_1 0.00 0.00 0 0 0 0 0 0  
## p\_co\_2 0.00 0.00 0 0 0 0 0 0  
## p\_co\_3 0.00 0.00 0 0 0 0 0 0  
## p\_co\_4 0.00 0.00 0 0 0 0 0 0  
## p\_co\_5 0.00 0.00 0 0 0 0 0 0  
## p\_co\_6 0.00 0.00 0 0 0 0 0 0