Definitions and Functions

```
In[ ]:= path = NotebookDirectory[];
        SetDirectory[path];
```

```
In[ ]:= returneditteddata[passeddata_] :=
         Module[{data = passeddata},
          somdata = Transpose[data];
          somdata = somdata /. x_ /; x ≤ 0.5 → 0;
        maxvals = Table[TakeLargest[somdata[[All, i]], 5], {i, 1, 16}];
        range = Range[5];
        sorted = Sort[#] & /@ maxvals;
        replacelist = Table[If[sorted[[j]][[i]] ≤ 0.5,
              sorted[[j]][[i]] → 0, sorted[[j]][[i]] → range[[i]], {j, 1, 16}, {i, 1, 5}];
        editeddata = Table[somdata[[All, i]] /. replacelist[[i]], {i, 1, 16}] /. x_ /; x < 1 → 0;
          editeddata // Transpose
         ]
```

```
In[ ]:= sequences = Import["Sequences"];
        seq = sequences // Chop // Round;
        xrow = Range[0.5, 2, 0.1];
        ycolumn = Range[1, 25, 1];
        yticks = MapIndexed[{#2[[1]], #} &, xrow];
        xticks = MapIndexed[{#2[[1]], seq[[#]]} &, ycolumn];
```

For individual θs

```
In[ ]:= stringtoprobe = Table["Deterministic_sequences_p_0.4_p1_0.0_p2_0.8_K_10_th_" <>
            ToString[i] <> "*", {i, 1, 9}];
        allfilenames = Table[FileNames[stringtoprobe[[i]]], {i, Length[stringtoprobe]}];
        alldata = Table[Table[Import[allfilenames[[i, j]]] // Flatten,
            {j, Length[allfilenames[[i]]]}], {i, Length[allfilenames]}];
        allreturneddata = returneditteddata[#] & /@ alldata;
        rules = {0 → White, 1 → Lighter[Green, 0.75], 2 → Lighter[Green, 0.5],
          3 → Lighter[Green, 0.25], 4 → Green, 5 → Darker[Green]}
```

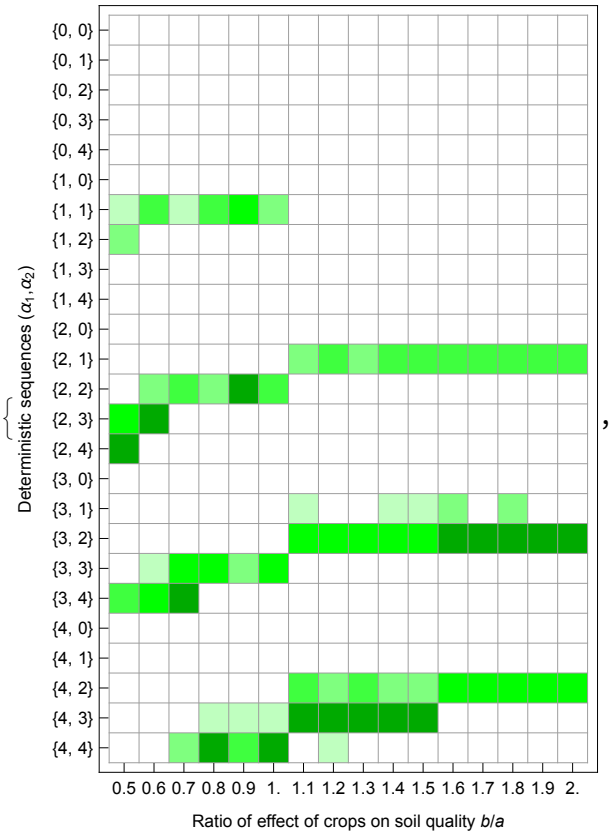
```
Out[ ]= {0 → , 1 → , 2 → , 3 → , 4 → , 5 → }
```

```
In[ ]:= plots = Table[MatrixPlot[allreturneddata[[i]],
            ColorRules → rules, Mesh → True, FrameTicksStyle → Opacity[1],
            FrameTicks → {{xticks // Reverse, None}, {yticks, None}},
            ImageSize → Automatic, FrameLabel → {"Deterministic sequences (α1,α2)",
              "Ratio of effect of crops on soil quality b/a"}],
           {i, Length[allreturneddata]}];
```

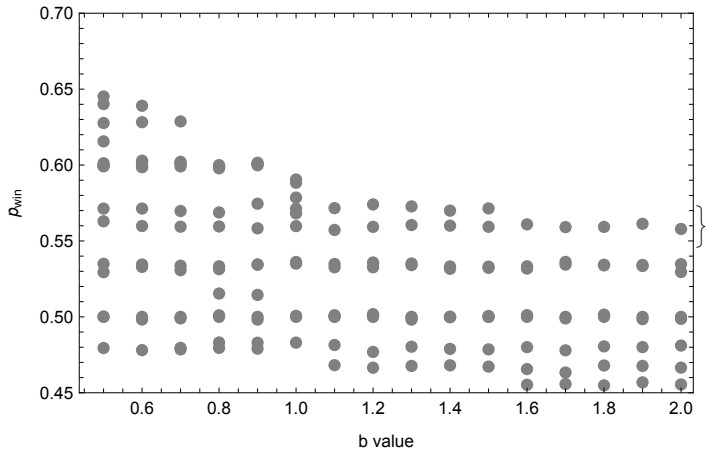
In[ ]:=
```
pwinplots =
  Table[ListPlot[Transpose[alldata[[i]]], PlotRange → {Automatic, {0.45, 0.7}},
    PlotStyle → Directive[Gray, PointSize[0.02]],
    DataRange → {0.5, 2}, FrameLabel → {"b value", "pwin"},
    Frame → True, ImageSize → Automatic], {i, Length[alldata]}];
```

In[ ]:=
```
FlipView[Partition[Riffle[plots, pwinplots], 2], ImageSize → Full]
```

Out[ ]=



,



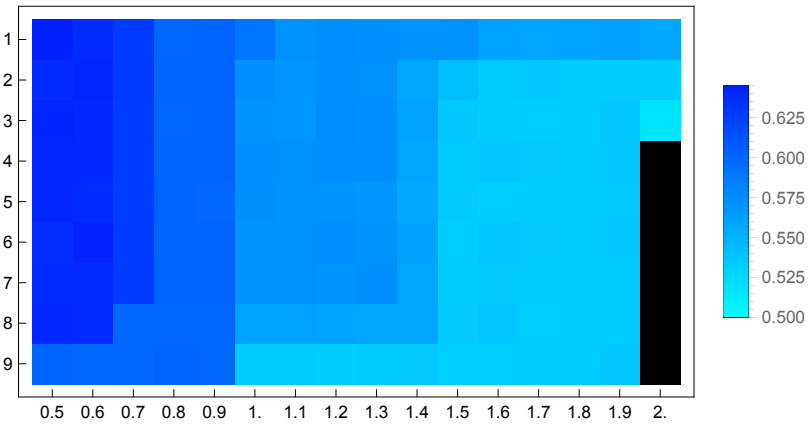
In[ ]:=
```
onlymaxpwins = Table[Max[#] & /@ alldata[[i]], {i, 1, Length[alldata]}];
```

In[ ]:=
```
TakeLargest[SetPrecision[onlymaxpwins // Flatten, 2], 10]
```

Out[ ]=
```
{0.64, 0.64, 0.64, 0.64, 0.65, 0.64, 0.64, 0.64, 0.63, 0.63}
```

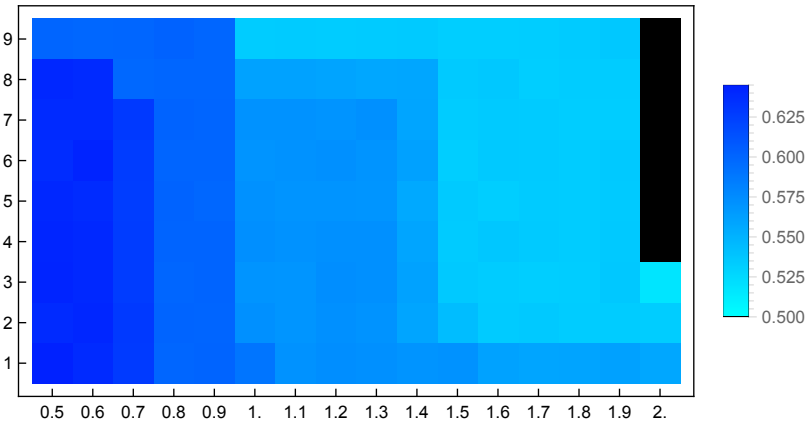
In[ ]:=
```
MatrixPlot[SetPrecision[onlymaxpwins, 2],
 ColorFunction → Function[{x}, If[x ≤ 0.5, Black, Hue[x]]],
 ColorFunctionScaling → False, PlotLegends → Automatic,
 FrameTicks → {{Automatic, None}, {yticks, None}}]
```

Out[ ]=



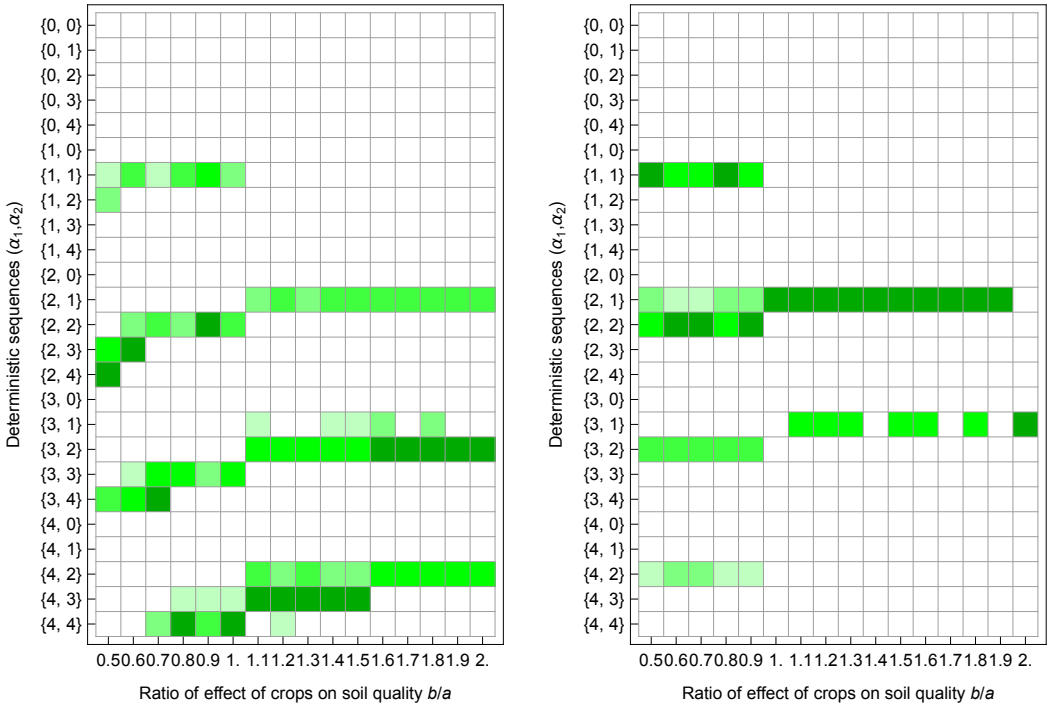
In[ ]:=
```
MatrixPlot[SetPrecision[onlymaxpwins // Reverse, 2],
 ColorFunction → Function[{x}, If[x ≤ 0.5, Black, Hue[x]]],
 ColorFunctionScaling → False, PlotLegends → Automatic, FrameTicks →
  {{{{1, 9}, {2, 8}, {3, 7}, {4, 6}, {5, 5}, {6, 4}, {7, 3}, {8, 2}, {9, 1}}, None},
   {yticks, None}}, FrameTicksStyle → Black,
 FrameStyle → Directive[Black, Thickness[0.002]]]
```

Out[ ]=



In[ ]:=
```
GraphicsRow[{plots[[1]], plots[[9]}, ImageSize → Large]
```

Out[ ]=




```
{covercol, cashcol} = ColorData[97, "ColorList"][[{1, 2}]];
ArrayPlot[{{1, 1, -1, 1, 1, -1, 1, 1, -1, 1, 1, -1, 1, 1, -1, 1, 1, -1}},
 ColorRules → {1 → covercol, -1 → cashcol}, Mesh → True, MeshStyle → Black]
```

Out[ ]=