```
K = 10;(*Soil quality upper limit*)
γ = 0.6;(*Randomisation between cash and cover*)
p = 0.4;(*Probability of making a profit on cover crops*)
p1 = 0.0;(*Probability of making a
  profit on cash crops when soil quality is bad*)
p2 = 0.8;(*Probability of making a
  profit on cash crops when soil quality is good*)
θ = 3;(*threshold soil quality required by the cash crop to make a profit*)
a = 1;
b = -1;
cashyield = 1;
cashloss = -1;
gold = RGBColor["#FFD700"];
```

```
In[ ]:= overgamma = {};
For[i = 1, i ≤ 3, i++,
  γ = {0.0, 0.6, 1.0}⟦i⟧;
  profitslist = {};
  maxrealisations = 1000;
  For[realisation = 1, realisation ≤ maxrealisations, realisation++,
    soilquality = {0};
    profit = {0};
    runtime = 1000;
    For[time = 1, time ≤ runtime, time++,
      currentsoilquality = Total[soilquality];
      If[RandomReal[] ≤ γ,
        (*Cover crops*)
        If[currentsoilquality < K,
          AppendTo[soilquality, a], AppendTo[soilquality, 0]];
        If[RandomReal[] ≤ p,
          AppendTo[profit, cashyield], AppendTo[profit, cashloss]];,
        (*Cash crops*)
        If[currentsoilquality ≤ θ,
          If[RandomReal[] ≤ p1,
            AppendTo[profit, cashyield], AppendTo[profit, cashloss]];,
          If[RandomReal[] ≤ p2,
            AppendTo[profit, cashyield], AppendTo[profit, cashloss]];];
        If[currentsoilquality > 0,
          AppendTo[soilquality, b], AppendTo[soilquality, 0]];
      ]
    ];
    AppendTo[profitslist, Accumulate[profit]]
  ];
  AppendTo[overgamma, profitslist];
]
```

```
In[ ]:= randomisedzeoptsix = {overgamma[[2]], Mean[overgamma[[2]]]};
       cashcrops = {overgamma[[1]], Mean[overgamma[[1]]]};
       covercrops = {overgamma[[3]], Mean[overgamma[[3]]]};
       stochcover = Take[overgamma[[3]], {1, Length[overgamma[[3]]], 10}];
       stochcash = Take[overgamma[[1]], {1, Length[overgamma[[1]]], 10}];
       stochrand = Take[overgamma[[2]], {1, Length[overgamma[[2]]], 10}];

       stochcoverpl = ListPlot[stochcover, Joined → True,
          PlotStyle → Directive[Opacity[0.05], Purple], PlotRange → {All, {-101, 101}},
          Joined → True, Frame → True, FrameStyle → Directive[Black, Thickness[0.003]],
          FrameLabel → {Style["Time", 14, Black], Style["Cumulative yield", 14, Black]}];

       stochcashpl = ListPlot[stochcash, Joined → True,
          PlotStyle → Directive[Opacity[0.05], gold], PlotRange → {All, {-101, 101}},
          Joined → True, Frame → True, FrameStyle → Directive[Black, Thickness[0.003]],
          FrameLabel → {Style["Time", 14, Black], Style["Cumulative yield", 14, Black]}];

       stochrandpl = ListPlot[stochrand, Joined → True,
          PlotStyle → Directive[Opacity[0.05], Blue], PlotRange → {All, {-101, 101}},
          Joined → True, Frame → True, FrameStyle → Directive[Black, Thickness[0.003]],
          FrameLabel → {Style["Time", 14, Black], Style["Cumulative yield", 14, Black]}];

In[ ]:= mainpl = ListPlot[{randomisedzeoptsix[[2]], cashcrops[[2]], covercrops[[2]]},
          PlotRange → {All, {-101, 101}}, Joined → True, PlotStyle → {Blue, gold, Purple},
          Frame → True, FrameStyle → Directive[Black, Thickness[0.003]],
          FrameLabel → {Style["Time", 14, Black], Style["Cumulative yield", 14, Black]}];

In[ ]:= Show[stochcashpl, stochcoverpl, stochrandpl, mainpl,
         PlotRange → {All, {-101, 101}}, Joined → True, PlotStyle → {Blue, gold, Purple},
         Frame → True, FrameStyle → Directive[Black, Thickness[0.003]],
         FrameLabel → {Style["Time", 14, Black], Style["Cumulative yield", 14, Black]}]
```
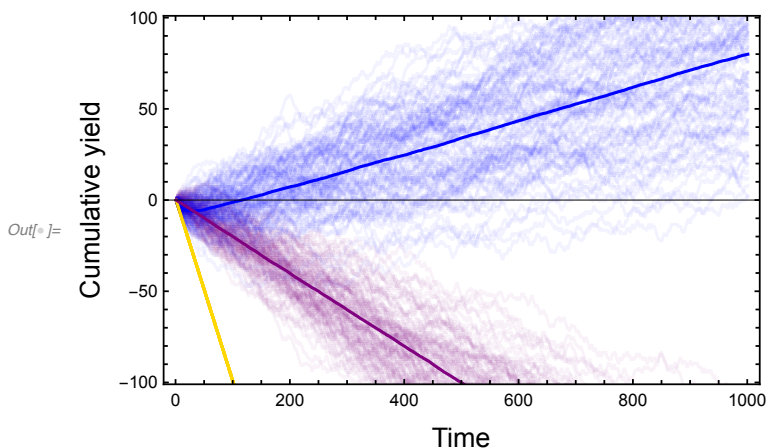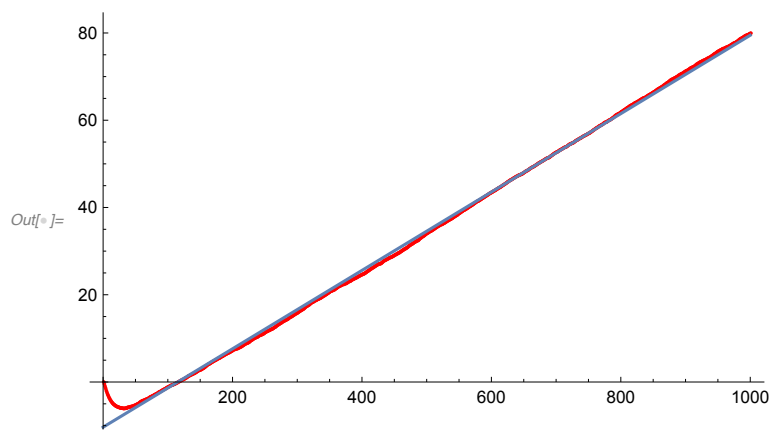


```
In[ ]:= line = Fit[randomisedzeoptsix[[2]], {1, x}, x]

Out[ ]= -10.3515 + 0.0898261 x
```

In[ ]:= **Show[ListPlot[randomisedzeoptsix⟦2⟧, PlotStyle → Red], Plot[line, {x, 0, 1000}]]**

Out[ ]=

In[ ]:= $\dfrac{\text{line}⟦2, 1⟧ + 1}{2}$

Out[ ]= 0.544913