# Description of Scenarios

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|  | **IE Duration of pathogen spread** | **IE Estimated spread distance** | **Strategy starting point** | **Asymptomatic period** | **Method sensitivity** |
| Scenario 1 | Matched (5 years or 25 generations) | Matched (1050m/year or 750m/gen) | Centre | None | 0.2, 0.5, 0.8, 1.0 |
| Scenario 2 | Matched (5 years or 25 generations) | Matched (1050m/year or 750m/gen) | Centre | 365 days | 0.2, 0.5, 0.8, 1.0 |
| Scenario 3 | Matched (5 years or 25 generations) | Matched (1050m/year or 750m/gen) | Random symptomatic tree | 365 days | 0.2, 0.5, 0.8, 1.0 |
| Scenario 4 | Overestimated, matched and underestimated | Year: 450m, 750, 1050m, 1350m  Gen: 350m, 550m, 750m, 1050m | Random symptomatic tree | 365 days | 0.2, 0.5, 0.8, 1.0 |

Scenarios 1 to 4 were applied to random host distributed landscapes. When assessing the performance of the delimiting strategies on clustered or extreme clustered landscapes, a modified Scenario 4 was used, where the Method Sensitivity was fixed at 0.5.

# Further Elaboration on the Multi-foci Strategy’s Poor Performance

The performance of the Multi-foci strategy was most negatively affected when the strategy started on a random symptomatic tree and asymptomatic trees cannot be detected. This is caused by three reasons:

1. Exponential dispersal. Because the IBM models the spread with an exponential dispersal kernel, the epidemic spreads from its origin and creates two fronts: an inner front of symptomatic hosts and an outer front of asymptomatic hosts.
2. Starting point bias. When the Multi-foci strategy begins at a random symptomatic tree on the edge of the symptomatic front, it encounters more symptomatic hosts towards the epidemic’s origin and fewer in other directions. This bias persists even with perfect method sensitivity, as fewer hosts are sampled away from the origin. At lower sensitivities, imperfect detection further reinforces this trend, leading the strategy to focus inward rather than outward.

Limited detection range. The constant and relatively short radii of the Multi-foci survey circles fail to capture the full extent of the spread, especially given the imperfect detection of infected trees.