6199-4-4P AID:97222 | 09/02/2020

Calculate infiltration by using given below equation



Here f is infiltration at any given time t, fC is final infiltration rate, fO is Initial infiltration rate, K is Horton’s infiltration constants, t is time.

Substitute fC is 61mm/h, fO is 159mm/h, k is 4.7 (h-1) for Fuquay pebbly loamy sand & given time t in hours

Case I:

At t as 12minutes (i.e. substitute t as 12/60 hours)

         f  =159+(159-61)

            =159+(98)(0.390628)

=159+38.2815

=197.2815 mm/hour

Case II:

 At t as 30 minutes (i.e. substitute t as 30/60 hours):

=159+(159-61) 

=159+9.34619

=168.34619 mm/hour

Case III:

 At t as 60 minutes (i.e. substitute t as 60/60 hours):

=159+(159-61) 

=159.89134 mm/hour

Case IV:

 At t as 120 minutes (i.e. substitute t as 120/60 hours):

=159+(159-61) 

=159+(159-60)e-4.72

=159.00810 mm/hour

The volume of water infiltrated:

Referring to the equation 4-5 of the chapter, Volume = 

Substitute  fC is 61mm/h, fO is 159mm/h, k is 4.7 (h-1) for Fuquay pebbly loamy sand & t as 2 hours i.e 120 minutes

