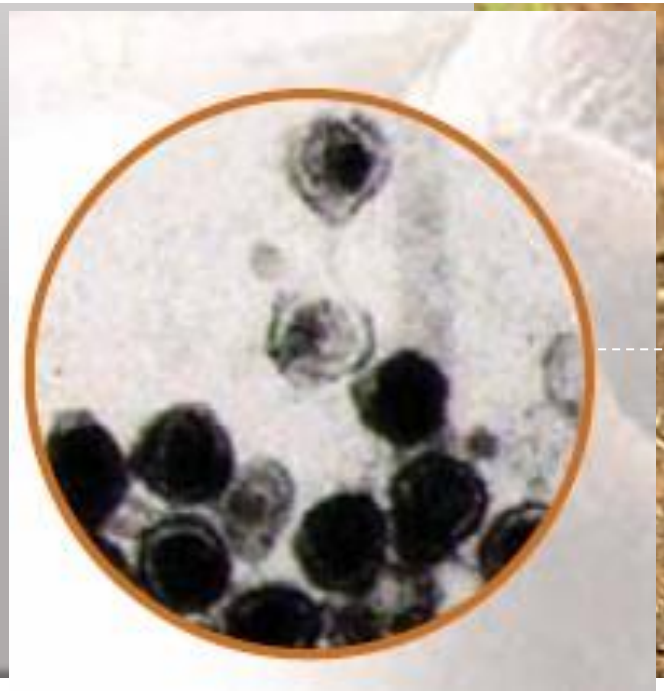
EXPLORATION OF CIRCULATION OF CSF IN BUSHPIGS AND DOMESTIC PIGS IN BOENY AND MENABE REGION

Background:
Bushpig are the natural reservoirs of CSF which is a highly contagious desease of swine caused by a flaviviridae of the genus petsivirus and which can be transmitted by direct entry.



Statistical question: *What is the Relationship between the prevalence of CSF in domestic pigs and their contact with bushpigs ?*
Mechanistic question: *How does the contact with bushpig infected the prevalence of CSF in pigs?*
Acknowledgements to NIF-NAF project, CIRAD, FOFIFA, DRZVP, Hunters on the field.

Statistical question: *What is the Relationship between the prevalence of CSF in domestic pigs and their contact with bushpigs ?*

Hypothesis : The prevalence of CSF in pigs in village is affected by contact with bush.

Reponse variable: Occurrence of CSF in village (0,1)

Predictor variable : Seen sick bush pig/Seen dead bush/distance _village_and_ hunting_area/Observe direct contact/Presence of pig in the area.

Family : Binomial

Link : Logit

R code:glmer (occurrence_of_csf ~ + Seen_sick_bus_ pig+Seen_dead_bush+distance_village_and_hunting_area + Observe_direct_contact + Presence_of_pig_in_the_area +(1|village/hunter), data=Hunting, family= “binomial”,link=logit)

CSF

CSF

Mechanistic question: *How does the contact with bushpig influence the prevalence of CSF in domestic pigs ?*

Hypothesis : The contact with bushpig increase the prevalence positive of CSF in domestic pigs.

States :

SB= Suspected Bushpig

IB=Infected Bushpig

RB=Recovered bushpig

SD= Suspected pig

ID=Infected pig

RD=Recovered pig

LB /LD= Latent stage of CSF

Processes :

aB =Infection induce mortality in Bushpig

aD = Infection induce mortality in Domectic pig

MB =Natural mortality bushpig

MD =Natural mortality pig

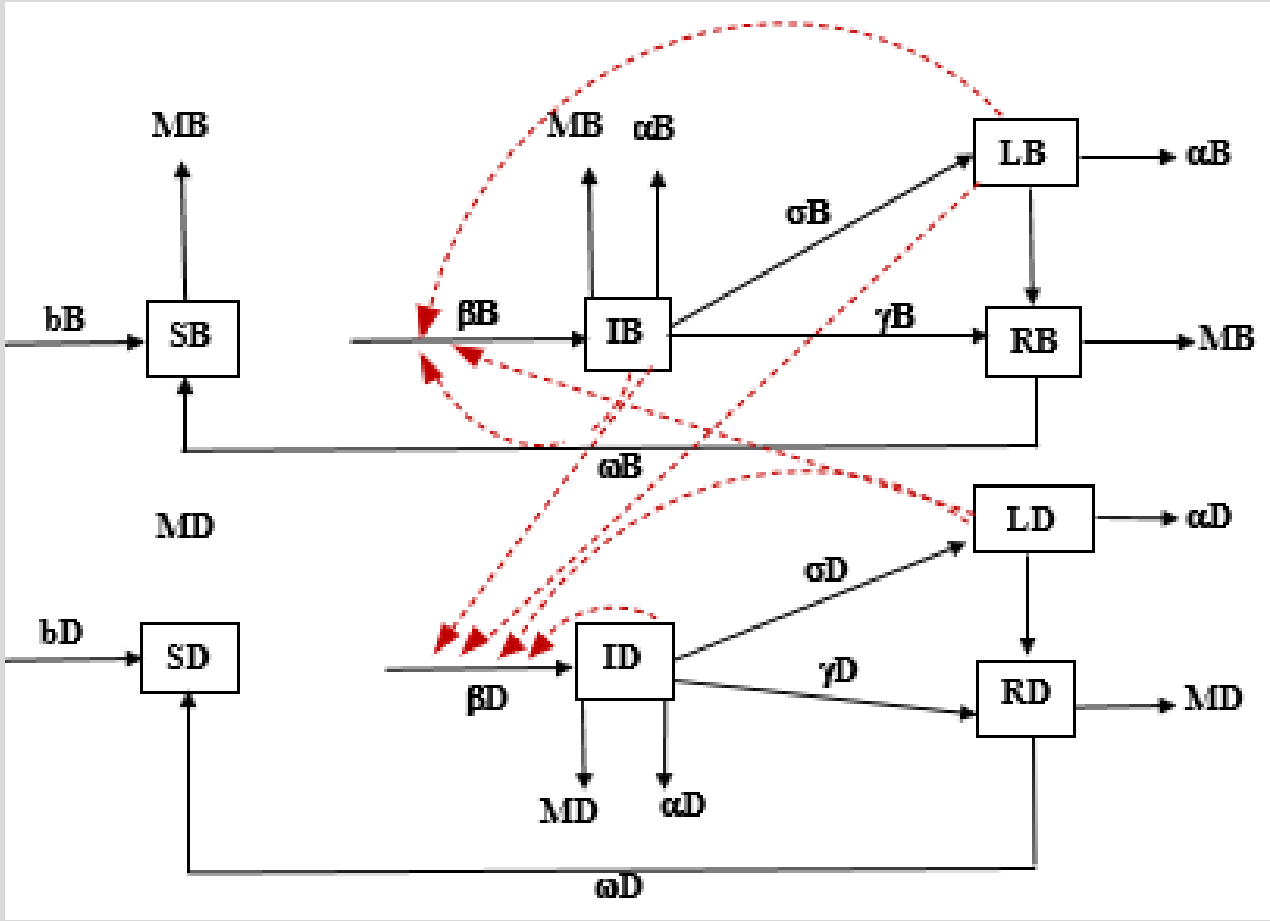
gD gB = Rate of recovery

bD bB = Transmission rate

bD bB = Birth rate

wD wB =Rate of

sD sB =Progression rate of CSF



$$\frac{dSB}{dt} = bB(SB + IB + RB + LB) - MBSB - \text{bBSB (IB+LB+LD)}$$

$$\frac{dSD}{dt} = bD(SD + ID + RD + LD) - MDSD - \text{bDSD (IB+ID+LD+LB)}$$

NEXT STEPS

1- Field data collection and biological sampling.
2 – Data processing and cleaning.
3 – Data analysis with R software.
4 – Serological analysis of collected biological samples.
5 – Dissertation writting.