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**MEMORANDUM CIRCULAR**

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**SUBJECT: SAMPLING PROTOCOL DURING SURVEILLANCE OF SENTINEL ANIMALS ON PREVIOUSLY AFRICAN SWINE FEVER AFFECTED PREMISES**

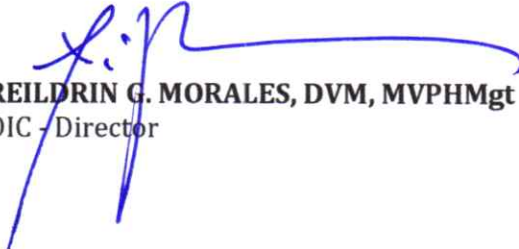
Science-based sampling protocol is very critical in detecting the presence of disease in a certain population. In order to produce sound results with minimal cost involved, a systematic approach in obtaining sample size and sampling technique is highly recommended.

As the country is ramping up its efforts on repopulation, sentinel animals are distributed in previously affected premises to assess the presence of African Swine Fever virus. Due to challenges such as limited manpower and logistics, traffic in ASF laboratory diagnosis, coordination difficulties among farmers, employing a science-based sampling protocol, instead of blood sample collection in all animals, will address these gaps.

In view of the foregoing, the following sampling protocol illustrated in Annex A will serve as guidance in the conduct of blood sample collection for sentinel animals.

For your reference and information.

Done this 23<sup>rd</sup> day of November 2021.

  
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OIC - Director



## Annex A. Sampling Protocol for Sentinel Animals

### Sampling farms with sentinel herds

#### 1. Sentinel animals in a farm:

##### a) 100 sentinel animals

Using Freecalc with the following assumptions:

6% design prevalence (ASF Prevalence from BAI database as of March 2021)  
Perfect tests where Sensitivity and Specificity are 100% (if tests are imperfect, sample size may vary with a corresponding cut of number of reactors)

**Sample size: 39** (See Table 1 by Cannon and Roe)

In a farm, collect samples from **39 pigs** chosen randomly either through simple or systematic sampling.

##### b) 30 sentinel animals

Using Freecalc with the following assumptions:

6% design prevalence (ASF Prevalence from BAI database as of March 2021)  
Perfect tests where Sensitivity and Specificity are 100% (if tests are imperfect, sample size may vary with a corresponding cut of number of reactors)

**Sample size: 24** (See also Table 1 by Cannon and Roe)

In a farm, collect samples from **24 pigs** chosen randomly either through simple or systematic sampling.

#### 2. Sentinel animals in an area (barangay or clusters of barangays within a municipality)

##### a) 100 sentinel animals placed in different barangays (6 barangays)

Using Freecalc with the following assumptions:

6% design prevalence (ASF Prevalence from BAI database as of March 2021)  
Perfect tests where Sensitivity and Specificity are 100% (if tests are imperfect, sample size may vary with a corresponding cut of number of reactors)

**Sample size: 39** (See Table 1)

Sampling unit: Pig

- b) How to select the animals per barangays, use probability proportional to size sampling

Example:

Barangays	Distribution of sentinel animals per barangay		Number of Samples per barangay
		% Population	if 100
A	20	20	9*
B	20	20	8
C	20	20	8
D	20	20	8
E	10	10	4
F	10	10	4
Total	100	100	39

\*With one additional sample to complete the 39 samples required

Note: If the population of sentinel animals is above the number indicated in the population size column, round up to the next population size. For instance, the population of sentinel animals is 110, use 120 as the population size. Therefore, the total sample size needed for 110 sentinel animals will be 40 animals

- c) From above table, get the list of farmers from each barangay who were given sentinel animals and determine how many pigs each farmer was given to determine how many pigs will be sampled per farm.

Example: (Required Sample Size for Brgy. A is 9)

Farmers within Brgy A	Sentinel Inventory of pigs	Select
	if 100	Pig number to be sampled
Farmer A.1 (whoever first registers)	5	1-5 (5 pigs)
Farmer A.2	3	1-3 (3 pigs)
Farmer A.3.	3	1 (1 pig)
Farmer A.5.	3	
Farmer A.6.	4	
Farmer A.7.	5	
Farmer A.8.	6	
Etc		

Note: Since **only 9 samples** are needed for Barangay A, getting samples from **Farmers A.1, A.2 A.3 would be enough** since their sentinel inventory is more than 9 already.

Table 1. Sample size required for detecting disease at 95% Confidence Level

Pop'n size (N)	(i) Percentage of diseased animals in population (d/N) OR (ii) Percentage sampled and found clean (n/N)												
	50 %	40 %	30 %	25 %	20 %	15 %	10 %	6%	5%	2%	1%	0.5 %	0.1%
10	4	5	6	7	8	10	10	10	10	10	10	10	10
20	4	6	7	9	10	12	16	19	19	20	20	20	20
30	4	6	8	9	11	14	19	24	26	30	30	30	30
40	5	6	8	10	12	15	21	29	31	40	40	40	40
50	5	6	8	10	12	16	22	31	35	48	50	50	50
60	5	6	8	10	12	16	23	34	38	55	60	60	60
70	5	6	8	10	13	17	24	35	40	62	70	70	70
80	5	6	8	10	13	17	24	37	42	68	79	80	80
90	5	6	8	10	13	17	25	38	43	73	87	90	90
100	5	6	9	10	13	17	25	39	45	78	96	100	100
120	5	6	9	10	13	18	26	40	47	86	111	120	120
140	5	6	9	11	13	18	26	41	48	92	124	139	140
160	5	6	9	11	13	18	27	42	49	97	136	157	160
180	5	6	9	11	13	18	27	43	50	101	146	174	180
200	5	6	9	11	13	18	27	43	51	105	155	190	200
250	5	6	9	11	14	18	27	44	53	112	175	228	250
300	5	6	9	11	14	18	28	45	54	117	189	260	300
350	5	6	9	11	14	18	28	46	54	121	201	287	350
400	5	6	9	11	14	19	28	46	55	124	211	311	400
450	5	6	9	11	14	19	28	46	55	127	218	331	450
500	5	6	9	11	14	19	28	47	56	129	225	349	500
600	5	6	9	11	14	19	28	47	56	132	235	379	597
700	5	6	9	11	14	19	28	47	57	134	243	402	691
800	5	6	9	11	14	19	28	47	57	136	249	421	782
900	5	6	9	11	14	19	28	48	57	137	254	437	868
1000	5	6	9	11	14	19	29	48	57	138	258	450	950
1200	5	6	9	11	14	19	29	48	57	140	264	471	1102
1400	5	6	9	11	14	19	29	48	58	141	269	487	1236
1600	5	6	9	11	14	19	29	48	58	142	272	499	1354
1800	5	6	9	11	14	19	29	48	58	143	275	509	1459
2000	5	6	9	11	14	19	29	48	58	143	277	517	1553
3000	5	6	9	11	14	19	29	49	58	145	284	542	1895
4000	5	6	9	11	14	19	29	49	58	146	268	556	2108
5000	5	6	9	11	14	19	29	49	59	147	290	564	2253
6000	5	6	9	11	14	19	29	49	59	147	291	569	2358
7000	5	6	9	11	14	19	29	49	59	147	292	573	2437
8000	5	6	9	11	14	19	29	49	59	147	293	576	2498
9000	5	6	9	11	14	19	29	49	59	148	294	579	2548
10,000	5	6	9	11	14	19	29	49	59	148	294	581	2588
∞	5	6	9	11	14	19	29	49	59	149	299	598	2995

