

Welcome to SA Seeding

Dear SA Seeding Participant,

Thank you for supporting South Africa's first National Seeding initiative. Attached please find the document explaining how this system works, your benefits and which events are used for calculating the seeding.

Identifying participants in a unique manner has many advantages and our aim is to assist participants by using these advantages to offer benefits like direct access to your medical emergency details. We believe that this initiative will not only add value to your races but also, by tracking your racing history and benchmarking you with other riders, improve your riding experience.

Please note that your seeding will continuously be adjusted in the beginning as we are obtaining more and more data from race organizers. Contact us should you have any queries or questions. We are working hard at ensuring a better experience at events.

We sincerely wish you the best racing for the future!

Kind regards,

The SA Seeding Team

SUMMARY

SA SEEDING (SAS)

SA Seeding (SAS) is an exciting new race administration system through aimed at improving the standard of cycling events (especially mountain biking). SAS can be employed by race organizers to divide huge numbers into smaller batches that will eliminate congestion, providing riders with a much more enjoyable and safer riding experience. SAS provides a statistically sound method that facilitates smaller groups founded on the best-against-best principle. Allocating riders to batches provides an added benefit – it allows us to create a “SA Seeding Index (SAS Index)”. This SAS Index then serves as basis to create a ranked list of all local mountain bike participants. Getting onto the SAS Index requires participants to complete some races that are SAS “compatible”. This in turn will require participants to obtain a SAS Number Board.

The holder of a SAS Number Board will have a unique number (ID) assigned to him/her and this number will become a rider’s race number – a “number for life”. SAS Number Boards have built-in data chips with a unique identifier. The SAS Number Board and corresponding micro chip serves as the link between a rider’s personal detail and race performance.

SA Seeding Introduction

BACKGROUND ON SAS (SA Seeding)

SA-Seeding (SAS) is an exciting new race administration system through which we aim to improve the standard of cycling events (especially mountain biking). SAS is a joint venture between Advendurance and Entelect and shares data with ROAG to create a seeding index list that is available to race organizers country wide.

WHY SAS?

Mountain bike races are getting bigger every year. More bicycles than cars are sold every year, and it's a booming industry. Participants at mountain bike events demand a more organized and structured approach than a first-come-first-served approach. In addition, many of the mountain bike routes used during races cannot cater for large numbers of riders, causing bottle necks and consequently safety risks. Furthermore, mountain biking is an environmentally friendly sport, but routes become wider and vegetation is lost when thousands of riders are gunning for a single track in huge numbers at races. SAS can be employed by race organizers to divide huge numbers into smaller batches that will eliminate congestion, providing riders with a much more enjoyable and safer riding experience.

SAS provides a statistically sound method allowing us to create smaller groups founded on the best-against-best principle. SAS assists race organizers to handle large numbers much easier, thereby creating an immediate solution to all the above mentioned risks related to races. Furthermore, allocating riders to batches provides an added benefit – it allows us to create a “SA Seeding Index (SAS Index)”. This SAS Index then serves as basis to create a ranked list of all local mountain bike participants. Getting onto the SAS Index requires participants to complete some races that are SAS “compatible”. This in turn will require participants to obtain a SAS Number Board.

THE SAS NUMBER BOARD AND SEEDING ON THE SAS INDEX

All race participants in races used for SAS will be issued with a SAS Number Board. The holder of a SAS Number Board will have a unique number (ID) assigned to him/her and this number will become a rider's race number – a “number for life”. SAS Number Boards have built-in data chips with a unique identifier. This enables SAS to manage a database of riders and gather results that are used to create the seeding system. The SAS Number Board links the number that appears on the board with the corresponding micro chip number. The latter is directly linked to your personal information such as the rider's name, surname, ID number, license category and medical details.

The SAS Number Board and corresponding micro chip serves as the link between a rider's personal detail and race performance. Riders purchase SAS Number Boards and duplicate/replacement SAS Number Boards can also be issued at a nominal fee. It is crucial that no-one should tamper in any way with the SAS Number Board or cover the sponsors' logos on the number boards as these sponsors make it possible for us to have organized races.

OBTAINING A SAS NUMBER BOARD

SAS Number Boards can be purchased at a nominal fee in various ways. They are available:

- online at www.saseeding.co.za;
- online when entering events through entry portals – even events using 3rd party entry portals will offer SAS Number Boards;
- at race registration of a SAS compatible event; or
- free of charge to participants that exchange existing MTN/MiWay number boards for a SAS Number Board (contact sas@advendurance.co.za).

WHICH EVENTS ARE SAS COMPATIBLE?

Only results of events that took place over the past 24 months are used to calculate the SAS Index. Results in the MTN/MiWay National MTB Marathon Series and currently around 100 other events are used to calculate the SAS Index. However, results of any event can be used as data for the SAS Index, which is totally reliant on the data supplied by organizers. Results should preferably be linked to SAS Number Boards, but ID numbers can also be used in selective cases, especially in areas where there are only a few events that are currently SAS compatible.

CREATING THE SAS INDEX

In order to use results from various race events for calculating the SAS Index, the following variables are used for calculating a rider's personal race index:

- Event grading.
- Licence category.
- Rider race performance.

Event Grading

Events are graded to ensure that different events can be compared to each other. A weight value is determined, representing the contribution a specific event has on the SAS Index. Events used for SAS are graded according to

- Cycling SA event grading; and
- Race distance.

Cycling SA (CSA) event grading. All officially CSA sanctioned events are graded into categories according to prize money, number of participants and importance of the race. This creates a premise that A-category races will be more popular and therefore attract more participants, thereby providing stiffer competition to participants, and ensuring more representative results.

Race distance. Race distances prescribed by SA-MTB are used for event grading – races shorter than 35km are viewed as Fun Events and selectively calculated at 30% if the event falls in an area for which we need data.

Event Grading chart:

CSA Event Grading	Distance		
	1/2 Marathon	Marathon	Ultra Marathon
	35-50km	51-80km	81km+
A Category	70%	80%	100%
B Category	60%	70%	90%
C Category	50%	60%	80%
D Category	40%	50%	70%

License Category

The official CSA license categories for events are being used and riders must ensure that they have been entered and that they race in the official categories prescribed by CSA.

Rider Race Performance

A rider's race performance during each SAS compatible event is converted to a race index (Ri). This is done by means of calculating a rider's position and time behind the overall winner. The Ri represents his finishing time for the race as a factor of the winning time of the race. The weight contribution of each racing event is included in the calculation. The following formula is used:

$$Ri = 100 - 100 \times \frac{\text{Winning Time (in seconds)}}{\text{Finish Time (in seconds)}} \times \text{Race Weight}$$

Example:

Winning time: 2:00:05 = (2 x 3,600 + 5 seconds) = 7205 seconds

Rider's time: 2:25:10 = (2 x 3,600 + 10 x 60 + 5 seconds) = 8710 seconds

Race Weight: The rider took part in a Cat A ultra-marathon = 100% (Represented as a value of 1)

Race Index = (100 - (100 x 7205/8710)) x 1 = 17.28

The Ri for each of the SAS compatible races are then used and an average Ri is calculated for a rider, representing a SAS Index value for each respective rider. All average Ri of riders collectively constitute the SAS Index. A rider's SAS Index value is expressed as a number between 0 and 100 to two decimal places, determined by calculating the average of all race indexes (Ri) the rider accumulated on past results. A lower SAS Index indicates better past results. The SAS Index can be further refined by a collection of rules that govern how each participant is assigned a SAS Index Type.

SAS Index Types

Index Types can be defined and used to logically separate the SAS Index into groups, each group having its own average R_i , i.e. separating Gauteng riders from the rest. An Index Type specifies

- the number of events that should be used to calculate the average race index;
- the weighting of the each result (i.e. the highest result has a value of 70, second highest has a value of 50 etc.); and
- time weighting values that are used to alter the weighting of events as time progresses.

The formula used to determine a participant's average index per Index Type (e.g. Gauteng index type) is as follows:

$$\text{Weighted Average} = \frac{W_1(R_{i1} + W_{t1}(R_{i1})) + W_2(R_{i2} + W_{t2}(R_{i2})) + W_3(R_{i3} + W_{t3}(R_{i3})) + \dots + W_n(R_{in} + W_{tn}(R_{in}))}{W_1 + W_2 + W_3 + \dots + W_n}$$

$$W_1 + W_2 + W_3 + \dots + W_n$$

W: Positional Weight

R_i : Race Index

$W_t(R_i)$: Time Reduction – used to increase index when result expired (time reduction is a percentage value which may vary depending on the age of an event, i.e. older event results are reduced by a greater/smaller percentage)

Example

Race Index Type uses top 2 events

Race results expire after 6 months and decrease their weight by 50%

First event has a weighting of 70

Second event has a weighting of 30

This participant has done three events for this Index Type, with a R_i of 3.0, 4.0 and 3.2 for the 3 events (before the time reduction). The participant's last index (of 3.2) is 7 months old, the other indexes are all less than 6 months old.

Therefore the R_i 's after the time reduction would be (in the same order):

$$(3.0+0), (4.0+0), (3.2+(3.2 \times 0.5)) = 3.0, 4.0, 4.8$$

Thus the first 2 R_i 's would be chosen and the Average $R_i = 0.7(3.0)+0.3(4.0) = 3.3$

Race Results Age Depreciation

The time weighting of the Ri's is done before the top Ri's are chosen. For example, there can be 20 races in an Index Type, but only the top 3 per participant will be considered. The formula applies a weight to each Ri. The best Ri (after a time reduction formula is applied) is considered to have the highest weight. Race results are valid for a 24 month period only. The race results depreciate in value if the results are older than three months. The table below illustrates the % of validity lost over time:

CSA Event Grading (A, B, C or D Category)	Results Validity (% per distance)
Time elapsed	Value retained/used
0 - 3 months	100%
3 - 6 months	95%
6 - 12 months	90%
12 - 24 months	80%

Missing Race indexes (Ri)

If a rider has fewer results than the amount specified by the index, the system will only use the results he/she has.

Index Priority

If a rider has three indexes two of which have expired - the average index will be calculated using the best/lowest index after a time weighting reduction formula has been applied to the expired indexes.

Example

Ri1 = 1.4 Ri2 = 0.9 Ri3 = 0.4 (assuming Ri2 and Ri3 have expired) after the time weighting reduction formula is applied Ri1 = 1.4 Ri2 = 1.1 Ri3 = 1.8 the average Ri will be calculated using the following order Ri2, Ri1, Ri3 thus Ri2 will get the highest positional weighting Ri1 will get the next highest weighting and Ri3 will get the lowest weighting.

CONCLUSION

Initiating SAS implied that only currently available data could be used. In many cases this data was incomplete or inaccurate, impacting on riders' SAS Index. As we populate our SAS database with more complete and accurate data, the integrity of the SAS Index improves, making for a refined indexing and seeding system. For this we need rider involvement – kindly ensure that your information on race results is correct!