

17-19 May 2022

International Sustainable Greenkeeping Conference Meeting Danes, Dutch and Germans

Flip Wirth



DGB STARTED IN 2005

1. From data to information, knowledge and understanding
2. Evaluating yearly progress and improvements
3. Data driven maintenance, saving time and money
4. Sharing knowledge, knowledge platform DGB NGA
5. Research and future developments

- The art of responsible and sustainable greenkeeping by data controlled management
- Optimise growing conditions for fine grasses
- Understand risk and being innovative
- Record results and improvements

This ...??

Poor performance due to ill
poa annua

Or This ...!!

Healthy grasclover with fescue
and bent

MONITORING, REGISTRATION, RETRIEVAL and KNOWLEDGE SHARING!



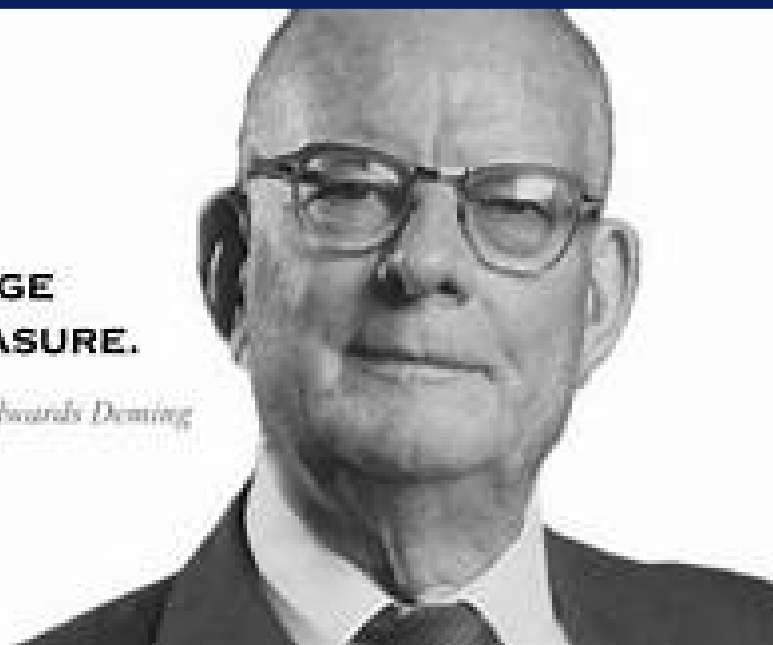


MONITORING and REGISTRATION

- Monitoring is understanding the matter?
- Without data, no information
- Data collecting based on set goals (maintenance plan)
- For direct own use, benchmarking, reporting
- Sharing knowledge makes greenkeeping attractive

**YOU CAN'T MANAGE
WHAT YOU DON'T MEASURE.**

-W. Edwards Deming





DATA DRIVEN MAINTENANCE

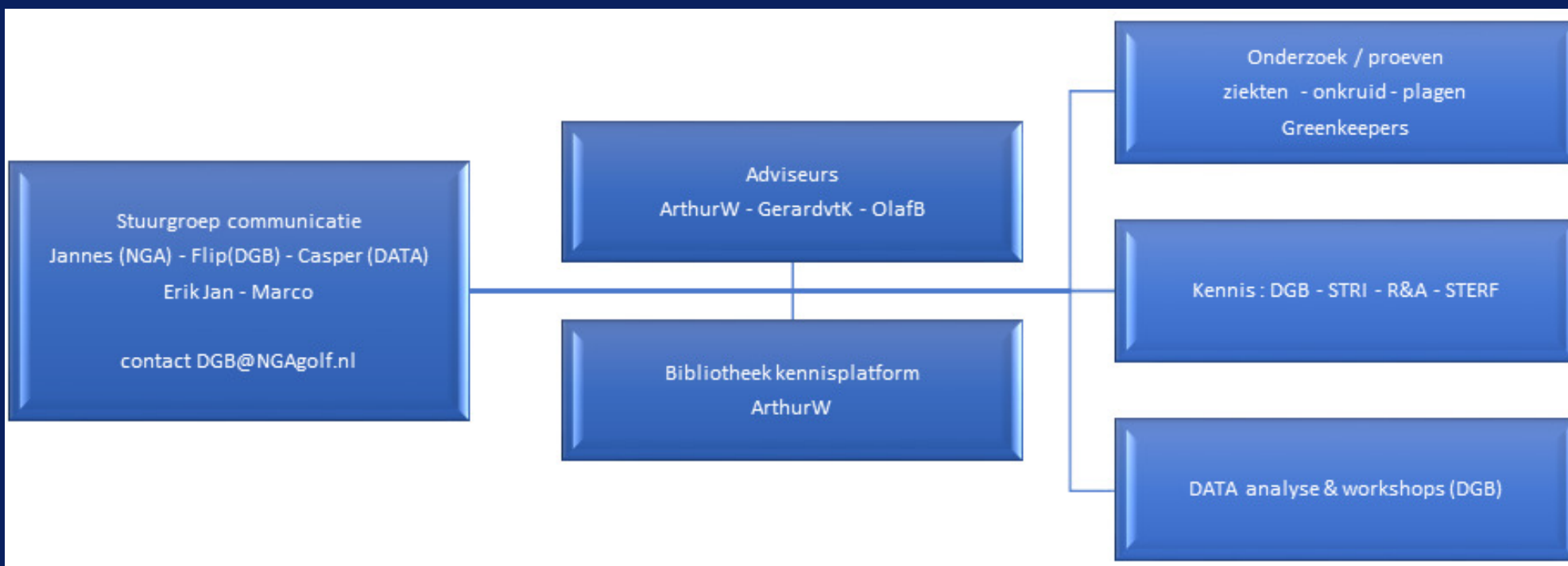
- Plan all work based on data collected (G-A-M)
- Skip unnecessary work
- Reduce number of maintained ha's
- Reduce water consumption and fertilizer use
- Do not use pesticides or herbicides
- Reduce costs/hours maintaining the golf course
- Reduce fuel consumption
- Reduce use of electricity

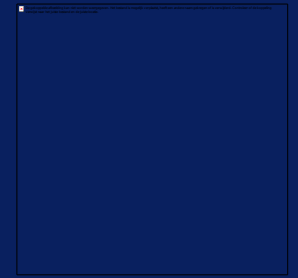


DGB 16 YEARS at WORK

- DGB has grown to an active group of 23 members
- We have a state of the art database and website
- DGB provides in the need for exchange of knowledge and sharing information
- Frequent contacts by gatherings and several Whatsapp groups
- Several members are running trials supported by members of the DGB NGA platform
- However: a greenkeeper is not a scientist and therefore DGB will provide support to the willing greenkeeper

- Launched knowledge platform with NGA
- Weed reduction trial in fairways GC Princenbosch
- Start group DGB meteorologists with 6 systems operational end 2021
- Start grass clippings volume group 2022
- Start grubs and leatherjackets investigation 2022
- National research programme on dollarspot and microdochium following start 2020





1. Discussion groups

1. Use of wetting agents
2. Data controlled maintenance
3. Improve dataset and standards for frequency of monitoring

2. Data-analyses

1. Dollarspot
2. Quality sheet
3. Monitoring & interpretation long term data
4. Feed back to greenkeepers

3. Research

1. Desk study setup and formulate goals
2. Formalise trial with protocol (outcome can be reused)
3. Project priorities
 - a. Dollarspot and microdochium nivale research on all DGB courses
 - b. Start up meteo/sensor systems with 6 DGB banen
 - c. Weed in fairways (Princenbosch)
 - d. Grass species in driving range 't Zelle
 - e. Leatherjackets etc.

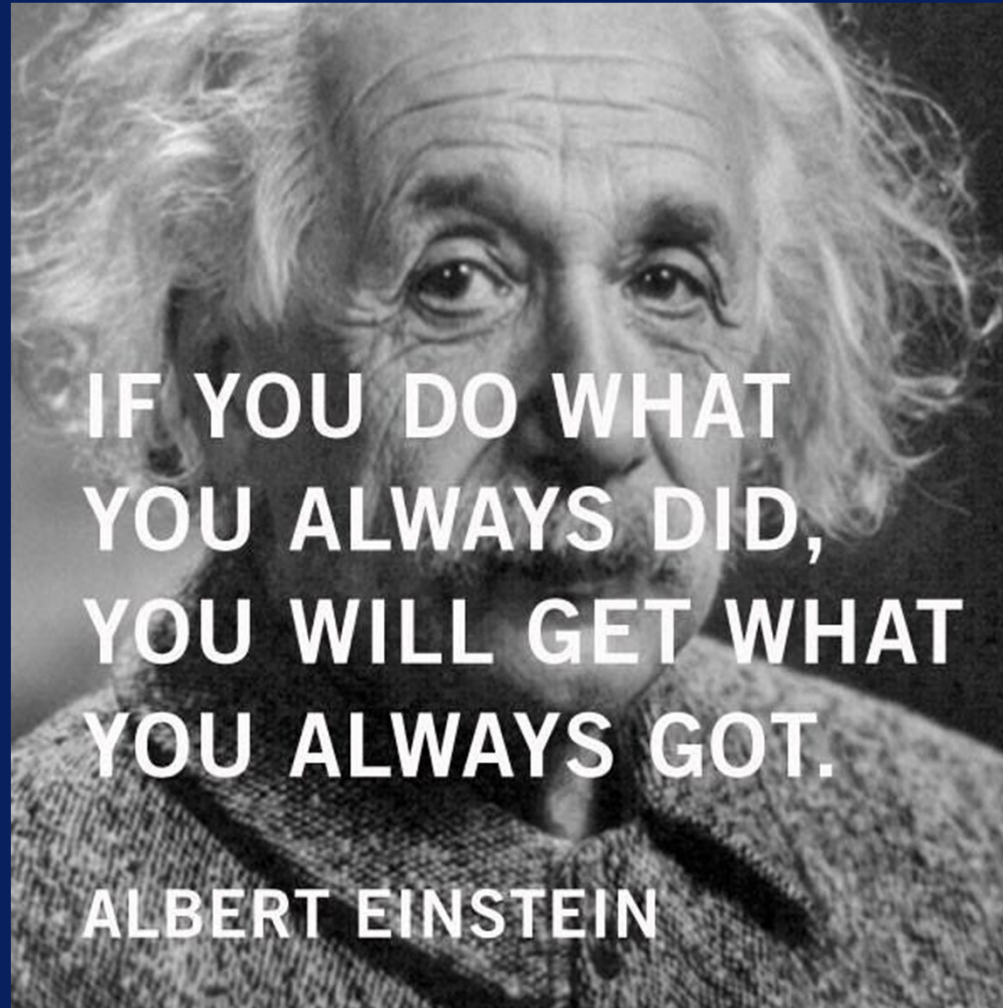
4. Workshops and masterclasses

1. Discussing articles
2. Benchmarking sessions



- In relation to Best Management Practice (BMP)
- Concerns initiatives such as research project on Dollarspot and Microdochium Nivale (subsidised)
- Clearly defined set of targets
- Outcome must be practical and applicable for greenkeepers
- Conducted on multiple types of golf courses
- Judgement, guidance and checks by DGB NGA Platform

- User experiences of a selection of DGB members i.r.t. Good Management Practices (GMP) cooperating with suppliers
- Using an approved protocol, for own conclusions
- Goals and registrations clearly defined
- Simultaneously executed on several golfcourses
- Results must be practical for use and understanding by greenkeepers
- Judgement, guidance and checks by DGB NGA Platform



**IF YOU DO WHAT
YOU ALWAYS DID,
YOU WILL GET WHAT
YOU ALWAYS GOT.**

ALBERT EINSTEIN



Questions?





IPM project dollarspot and fusarium

Meeting international sustainable greenkeepers
Hamburg region, Germany, May 2022



*Zuid –Limburg NL, 28th March 2022
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GRASS²VALUE

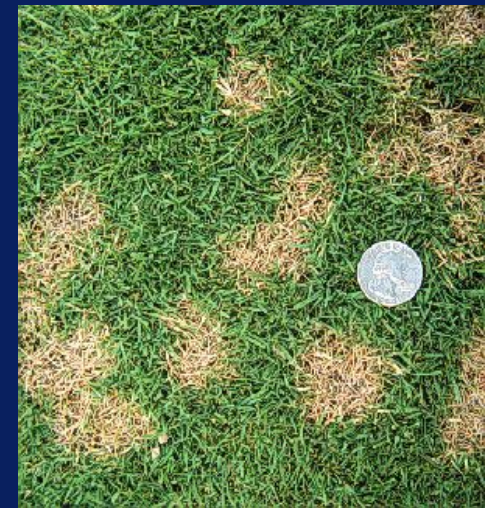
Arthur Wolleswinkel

Applied Research & Product Development



'Best Management Strategy' :

1. Reduction of leaf wetness period: after irrigation dew control, top dressing and e.g. iron sulphate application
2. Rolling of greens
3. Balanced fertilization
4. Act as soon as first symptoms show up.....



IPM research to dollarspot and snow mold

- Practical research focusing on damage reduction from microdochium and dollarspot
- 3 seasons (2022, '23 en '24)
- By intensive monitoring :
 - Measurements of agronomical parameters
 - Registration of management practices
- All results to be disseminated amongst Golf Alliance



KONINKLIJKE
NEDERLANDSE
GOLF FEDERATIE



- Not only Integrated Pest Management but in fact it is Integrated Turf Management!
- DS en snow mold are relevant. However, we are going to get more information: $1+1=3$
- DGB system approach is to be 'business as usual'
- Evidence based research of what the head greenkeeper is doing: research the other way around (*deductive approach*)



What do we want to achieve?

- **Monitoring** the **occurrence** (or **lacking**) of dollar spot and snow mold at current management practices.
- The **mechanism** behind the occurrence and prevention (or lacking) of dollar spot and snow mold
- How to **influence** this mechanism in **daily maintenance** practice? Which 'best management practices' without use of chemicals (within the borders of IPM!)
- Using knowledge and results of a.o. STERF and HS Osnabrück. Exchange of international experiences



The Plan:

- 12 NL courses – 3 greens G-A-B
- 4-5 visits a course a year
- Information from head greenkeeper– measuring set of parameters – meteodata – general quality
- **Set up is based on DGB** monitorings program
- Annual report to Golf Alliance
- Project team:
 - Casper Paulussen, NiBScanPro,
 - Arthur Wolleswinkel, Grass2Value
 - Gerard van 't Klooster



Participating courses:

- G&CC Lauswolt
- Links Valley GC 
- Veluwse GC
- Sallandsche GC 
- GC 't Zelle 
- Edese GC
- UGC de Pan
- GC Amelisweerd 
- Amsterdam GC
- GC Bentwoud
- Domburg Links course 
- GC Geijsteren

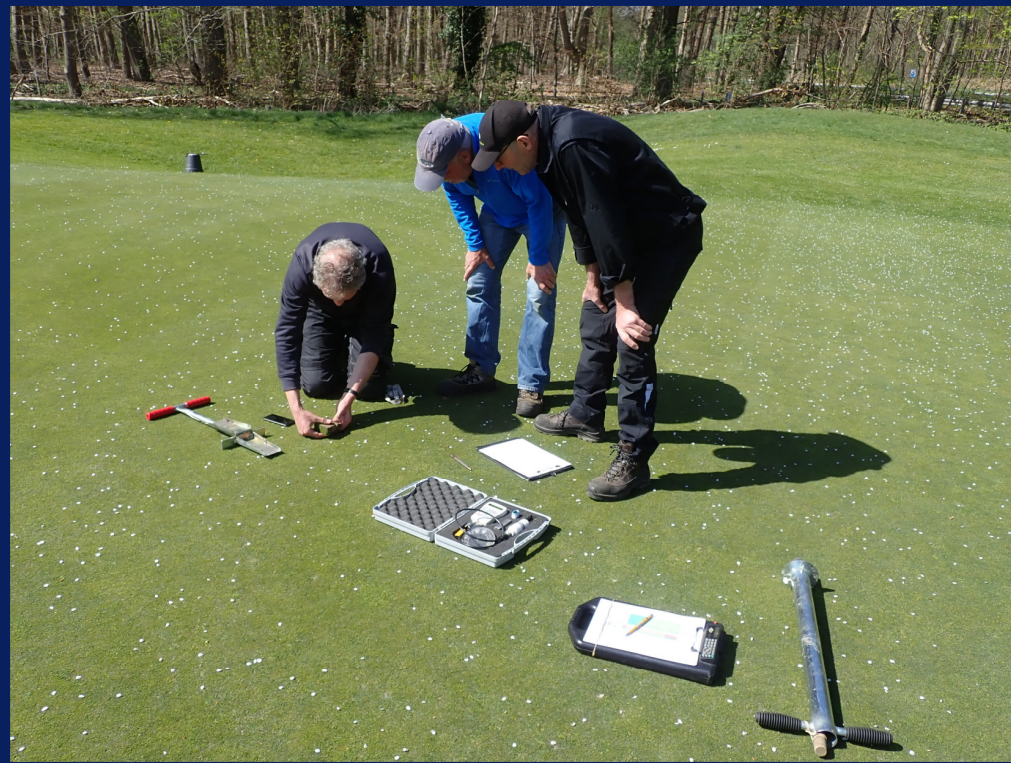


What parameters to measure?

- Period of leaf wetness (meteo)
- Air humidity (meteo)
- Soil temperature (meteo)
- Night temperature (meteo)
- uv-index (meteo)
- Grasses: species/cultivars, overseeding program
- Roots development and thatch
- Mowing height and frequency
- Rolling: frequency and time of the day
- Dew sweeping
- Usage of iron sulphate (yes/no) and application rates
- Use of chemicals (yes/no): product, application rates and frequency
- organic matter content 0-2, 2-4 en 4-6 cm
- Water conductivity (ring infiltration-method)
- pH water root zone (*d.i. pH soil, pH water is method*)
- Nitrogen program (kg/ha), rates, frequency and application time(s)
- volume soil moisture % top 5 cm
- volume soil moisture % deeper (-5/-8 cm)
- Irrigation levels (daily / wet-dry cycle / soil moisture %)









Any questions?

