

WESTERN WARDS ALLOTMENT ASSOCIATION

MANAGING EXTREME WEATHER CONDITIONS

1 Introduction

- 1.1 As we reflect on the management of our Western Wards allotment sites during 2022, there can be little doubt that the extreme weather conditions we have experienced during the year are the result of progressive climate change.
- 1.2 The purpose of this report is to provide some background and statistical evidence of climate change and some helpful data and initiatives sourced from the National Allotment Association website and other research.
- 1.3 There are no simple management solutions but this report offers some action plans designed to address the effects of extreme weather, particularly at times of drought.

2 Background

- 2.1 During the WWAA committee meeting held on 6th September 2022, concerns were expressed by site managers about the weather extremes during the summer of 2022 and, as a direct consequence, the number of plot holders who were giving up allotment keeping due to the failure of their crops due to drought.
- 2.2 Of most concern, extremes of hot weather and lack of any rain during July and August 2022 resulted in hosepipe restrictions being introduced by Southern Water Board in our area. The ban prohibited the use of hoses. During the drought, water butt stocks fed by sheds, greenhouses and poly-tunnel roofs and mains water supply were soon depleted. Most plot holders were simply not able to keep up with the need to water plants using a watering can drawn from a standpipe.
- 2.3 Temperatures in the UK in 2022 reached a record 40 degrees. There is every indication our climate will get even hotter during the summers, year on year in the foreseeable future. The National Trust organisation has reported that the extreme weather conditions are now 'the new norm'. The charity predicts that high temperatures, droughts, and storms with high winds will be commonplace challenges for the future.
- 2.4 We are told that there has been a 6% increase in rain during 2022. The irony is that, even as I draft this report in late December, we are experiencing torrential rain almost daily, but there is no means of 'storing' this precious resource at allotment sites for use during summertime drought other than small scale water butts. The majority of rainwater is 'lost' into the drainage system, rivers and the sea.

- 2.5 The care of plants on allotment plots during extreme weather conditions is clearly a personal responsibility for plot holders. Whilst many WWAA plot holders have taken innovative measures to protect plants and conserve water as individuals, the committee may feel that there needs to be a more considered and coordinated approach by our organisation to the problem.
- 2.6 The writer has been tasked with submission of a report to the committee in relation to this matter. As well as some supporting evidence, some initiatives are identified which might reduce the impact of climate change and rising temperatures on allotment sites by:-
- circulating and promoting National Allotment Association advice and guidance on use of water saving measures to plot holders on the website, newsletters or personal emails;
 - promoting appropriate gardening practices to support crop survival during drought conditions;
 - encouragement to shed, greenhouse and poly-tunnel owners to install water storage systems where there are none or additional storage;
 - prevention by ensuring that water leaks and unauthorised use of piped water is kept to a minimum;
 - investing as an organisation in bulk water saving equipment on behalf of members, thus reducing reliance on Southern Water Board 'mains water supply' and costs in the medium to longer term.

3 Rise in Summer Temperatures and Climate Change

- 3.1 The writer has carried out some research on the internet using the data provided by the Met Office and others. The rise in global average temperatures between 1850 and 2015 is set out in a graph below (Fig 1).

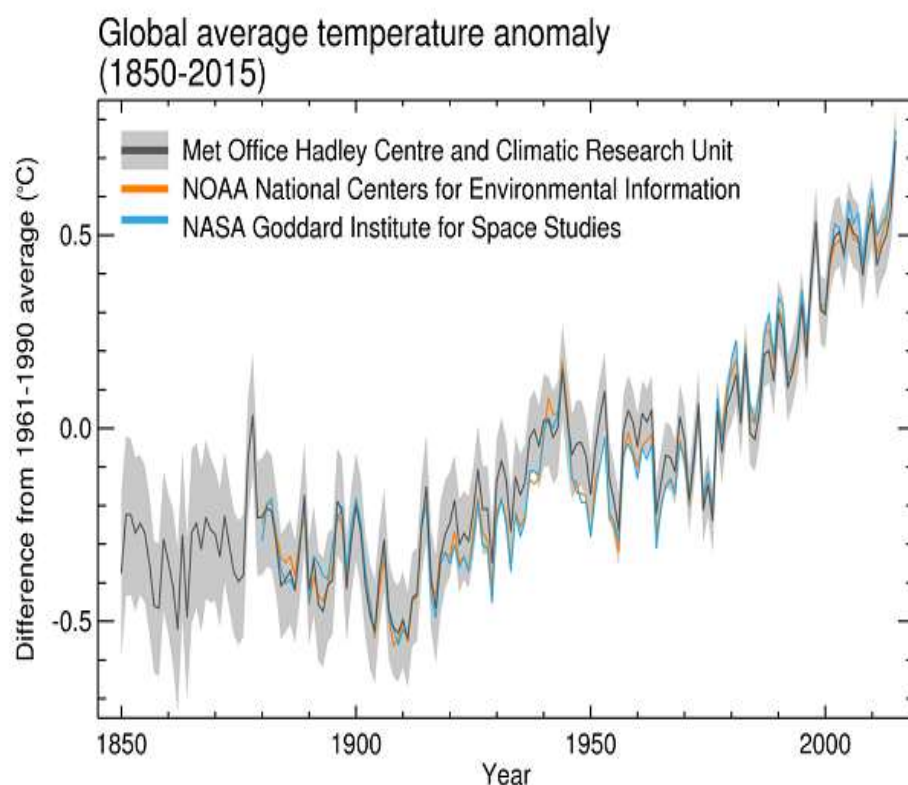


Fig 1

- 3.2 There can be no doubt that rising temperatures are the result of climate change. Global climate change is not a future problem. Changes to earth's climate driven by increased human emissions of heat-trapping greenhouse gases are already having widespread effects on the environment.
- 3.3 To our credit, allotment sites play a large part in ensuring carbon dioxide is captured in trees, plants and the soil. To preserve the natural environment, we manage the disposal of non combustible rubbish using skips sourced from reputable merchants, collect and arrange re-cycling of unwanted metals, manage the lighting and contents of bonfires sensitively and when appropriate and take measures to encourage 'wild life'.
- 3.4 It would be easy just to point to drought and shortage of water as the problem but they are not the only extreme weather challenges. There have been increasing numbers of local storms including Storm EUNICE during 2022 with wind speeds over 80mph which wrecked a number of greenhouses across the WWAA sites causing 'flying glass panels'. It is only good fortune that no one was seriously injured on a site. Some poly-tunnels too were wrecked during high winds. Trees adjacent to and on the site are being damaged or destroyed by high winds and are a risk to plot holders and local people.
- 3.5 Torrential rain during winter and spring caused by climate change also impacts allotment sites through flooding and soil erosion and we are reminded periodically to ensure that ditches are cleared of debris to prevent flooding. Extra drainage channels have been necessary resulting in capital expenditure.

4 Managing Use of Water on WWAA Sites

- 4.1 Whilst climate change affects all aspects of weather, it is the management of water which is of the greatest concern to WWAA managers at the present time regarding rainfall shortage and cost of mains water supply.
- 4.2 WWAA monitoring use of mains water
- 4.2.1 Since the handover of responsibility for the management of allotment sites in the Western Wards area some five years ago by Fareham Borough Council, the rising cost and use of mains supplied water has been monitored by the WWAA who are now responsible for payment.
- 4.2.2 Site managers are encouraged by the WWAA Hon. Treasurer to check site water meters monthly and the calculations recorded on the 'Share Point' central database for monitoring purposes. Water supply is turned off during winter months to prevent frost damage and restrict water loss.
- 4.2.3 From data provided by water authorities, the Hon. Treasurer reported to the 2022 Annual General Meeting that there was a 4% rise in WWAA water costs in 2022 and a 3% rise in 2021. This is not surprising in view of the extreme hot weather we have experienced in the past 2 to 3 years.

- 4.2.4 The use of hose pipes direct from main water supply to irrigate plants direct is discouraged in the Tenancy Agreement (see paragraph 6.2) and that plays a part in the control of use of mains water. In past years, this measure alone has been sufficient action to control costs and waste.
- 4.2.5 However, as well as hot weather, the ability to lengthen plant growing periods using greenhouses and poly tunnels will extend the length of time when water is required and increased costs of mains water supply will be a natural consequence.
- 4.3 National Allotment Association information
- 4.3.1 Research by the National Allotment Association suggests that the average rain water requirement in the South West for an allotment plot is 1800 litres per year.
(see [Water use on allotments – The National Allotment Society – National Society of Allotment and Leisure Gardeners Ltd \(nsalg.org.uk\)](http://www.nsalg.org.uk))
- 4.3.2 National Allotment Association research identifies that, where a plot holder employs appropriate gardening practices, as little as 1000 litres of water per year may be needed. However, where they are not, plot holders may use up to 8000 litres per year.
- 4.3.3 It is said that, using a formula developed by the NAA, a typical allotment shed measuring 2 meters by 3 meters may ‘harvest’ 3800 litres of water in a year. However for practical purposes, sufficient storage tank space would be necessary to hold a lot more than they currently do.

5 Action Planning for Climate Change

- 5.1 Rather than ‘crossing our fingers’ and leaving any drought measures to plot holders, it may be that the time has come to consider some action planning ‘to manage’ the inevitable consequences of climate change as they will effect the WWAA sites and to combat the rising cost of mains water.
- 5.2 This report offers some action plans which the committee may choose to select one or more of the following initiatives:-
- 5.3 Promoting and circulating guidance on use of water saving measures to plot holders on the website, newsletters or personal emails
- 5.3.1 The National Allotment Association (NAA) publishes helpful advice and guidance to allotment plot holders and gardeners on the use of water saving measures. These can be found at:-
[Water use on allotments – The National Allotment Society \(nsalg.org.uk\)](http://www.nsalg.org.uk)
- 5.3.2 It is suggested that the WWAA acquire a quantity of leaflets from the NAA and circulate these via the Trading Hut, notice boards or circulated personally either by email or in hard copy.

5.4 Promoting appropriate gardening practices to support crop survival during drought conditions.

5.4.1 Although not members of the organisation, the WWAA management and members are able to take advantage of NAA advice and guidance promoting gardening practices to reduce the need for water. These include:-

- Dig in or mulch with plenty of organic matter; this will help to retain moisture in the soil;
- Apply mulches when the soil is warm and moist. This will reduce water loss due to evaporation and also suppress weeds;
- Weeds compete for moisture and nutrients in the soil; so weed regularly or cover soil with a weed suppressing geo-textile;
- The weeds, roots and all can be composted if processed correctly by drowning in water or put in a black plastic bag in the sun until they decompose;
- Grow crops that suit your local conditions;
- A greenhouse or poly-tunnel can increase the need for water significantly so water harvesting is essential.

5.4.2 'Mulch' can be self generated or making use of 'chippings' delivered free by Tree Surgeons for that purpose. A number of plot holders order deliveries of vegetable mulch from Apsley Farms at Andover. A single ton bag delivered to a site will cost £60 – the cost is reduced to £50 where more than one bag is ordered. The contents are weed-free and pure vegetable matter and have been found to be a very effective water retaining mulch. Cattle, horse and chicken manures delivered for a similar amount also provide excellent mulches as well as soil improvement.

5.5 Encouragement to shed, greenhouse and poly-tunnel owners to install water storage systems where there are none

5.5.1 Whilst it is acknowledged that most shed, greenhouse and poly-tunnel owners have invested in water saving devices and tanks, there will be some who have not and many who need to increase storage capacity by linking two or more together. Some solutions include:-

- Water butts holding 100 to 250 litres of water by purchasing them from garden centres or on the internet at fairly cost effective prices;
- Sarisbury's local scrap metal collector Dave provides a service delivering cost effective water butts for £5 (07772 609679);
- Fareham Borough Council selling off used or slightly damaged 120 to 360 litre wheelie bins from their depot next to Sainsbury's Store at Fareham.

5.5.2 On a much larger scale, Intermediate Bulk Carriers (IBC's) 1000 litre storage tanks are available on Ebay at costs starting at £30 to £50. They can be stacked one on top of another off the ground to enable filling of watering cans from a tap and are reinforced with steel straps.

- 5.6 Prevention by ensuring that water leaks and unauthorised use of piped water is kept to a minimum.
- 5.6.1 As the result of an inspection by the Southern Water Board in 2019, action was taken by the WWAA to upgrade mains supply standpipes. This included the fitting of new posts on which to attach pipes and taps, fitting stop cocks and new taps and the upgrade of wooden surrounds and insulation.
- 5.6.2 Managers were requested by SWB inspectors to maintain an internal plan of the water system. Site managers have developed their own plans whether in hard copy or computer images.
- 5.6.3 Managers should also, as part of their water monitoring routines of meters, check standpipes for leaks from pipes or taps and keep a record of any action taken.
- 5.7 WWAA investing as an organisation in water harvesting structures and bulk water storage containers
- 5.7.1 The committee may consider that the time has come to consider investing as an organisation in rain water harvesting and bulk water saving containers on behalf of members, thus reducing reliance on Southern Water Board 'mains water supply' and costs.
- 5.7.2 Establishing a large rain water collection structure/reservoir would require a considerable amount of ground space and cost. It is an alternative to a large roof rain water collection over a building. Added to this would be the installation of storage tanks or underground reservoir and an irrigation system to supply users at additional cost.
- 5.7.3 Keith Johnson has kindly provided an example 'you tube video' link <https://youtu.be/l5Y2vCGz2k4> depicting the installation of an example 20' x 12' low roof to collect rain water and a gravity system to transfer the water via piping to 2 x 1000 litre IBC tanks.
- 5.7.4 Both Hunts Pond Road and Sarisbury Green have roofing space over equipment containers and other structures which could be used to the same effect but would require the purchase of 1000 litre IBC storage tanks or similar.
- 5.7.5 There are various commercially supplied bulk tanks for water storage both above and below ground level. Bulk tanks may typically store between 2,500 litres and up to 50,000 litres. The cost of bulk tanks will be a major investment and research shows that a 30,000 litre storage tank may cost in the region of £5,000.
- 5.7.6 Grants for capital expenditure on this type of project are available from the County Council or charitable organisations, for example Lottery funding.

Action – For a trial purpose, Sarisbury site managers are proposing to purchase two 1000 litre IBC's and linking them to the Equipment Container roof and guttering to evaluate their use. Estimated cost of £150 for two IBC's and guttering.

5.10 Bore holes, wells and accessing underground streams

- 5.10.1 As part of research, the issue of accessing underground streams by means of bore holes or wells in the ground has also been researched.
- 5.10.2 Bore holes will necessarily require licensing by the Environment Agency where more than 20 cubic meters per day is taken. A process to install a bore hole will require professional surveys to identify sources of water and use of specialist equipment to bore into the ground often 30 to 100 meters below ground.
- 5.10.3 The cost of undertaking the work would require a significant investment of multi thousands of pounds and at this stage, alternative systems may be more cost effective.

6 Submission of the report

- 6.1 In conclusion, evidence clearly shows that climate change, particularly increasing hot weather and shortage of water, is having an adverse effect on growing of produce on our allotment sites, the increased cost of mains water supply and a small increase in plot holders 'giving up' their plots.
- 6.2 The committee may consider that the adverse effects of climate change are a matter for individual plot holders to deal with. The WWAA management role is to provide allotment plots.
- 6.3 Alternatively, the committee may decide that one or more measures suggested in this report could be employed to manage the situation to a better effect in the interests of cutting costs and improving the service the WWAA offers.
- 6.4 It is accepted that these are not the only measures which may be adopted. Others may be able to demonstrate equally effective initiatives. The report is designed to promote a debate.
- 6.5 This report is submitted to the management committee for consideration.

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